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NATURE

DISPLAY'D.

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POEM.

Collins (R)

H. S.



*By Mr Collins author of y^e verses on my d^y
Chancellors motto: Labor ipse voluptas.*

UTILE DULCI.

L O N D O N:

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T O

David Polbill, Esq;

Member of PARLIAMENT.



IF the Notions of the ancient and modern Philosophers were unloaded of the Terms, and set in a clearer and closer View, they would be more Instructive, and more Entertaining.

Their Discoveries are the Effects of various Labours, publish'd at different Times, scattered, in the

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distant

Dedication.

distant Compass of Essays, Theories, Transactions, &c. so that very few have Application enough to peruse them all; and perhaps, not Capacity enough, to fix upon such as are most useful to be known. I have, therefore, join'd to them my own Thoughts; and to recommend them with the greater Advantage, have endeavour'd to put them into *English* Verse; and applied them to their proper Use, the promoting of Religion. I intend it well; let this be my Excuse if I have done it ill. It is not so easy a Task as many may Imagine, who write on common Subjects; and, where the Numbers

Dedication.

bers or Rhimes require it, can, at
Pleasure, vary the Thought.

I have other Business upon my
Hands, than to set up for a Poet;
and, as I claim no Place in *Par-*
nassus, so, I only wish its Inhabi-
tants Well, and fear no Danger
from that distant Country.

But, Sir, I have more Apolo-
gy, to make to you, than to all
the World besides, for making
use of your Name to authorize
this poor Performance, without
the least Intimation of such a De-
sign, rather than offend your Mo-
desty, I choose to trespass upon
your Good-nature; of which, and
many other excellent Quali-

A 3 ties

Dedication.

ties, whoever has the Honour to be acquainted with you, must have abundant proof, there is no Part of Natural, nor any other Sort of Philosophy, or useful Knowledge, with which you are not well acquainted: but, that which distinguishes you most, is, your constant Loyalty to your Prince, and Zeal for the Service of your Country; for which, you have spar'd no Pains nor Expence. To these, I might justly add, the many good Offices you are ready to do, upon all Occasions, in every Station of Life; which has made you generally useful, and, for that Reason, universally beloved. Your Embellish-

Dedication.

bellishments are your own, you have chose the best *Title* to Esteem, — not by Courting, but Deserving: It is this constant good Disposition, that has done more than your great *Alliances*: This has establish'd your Interest in *Kent*. I would not make use of the true Friend, to skreen the Trifler; and do hereby acquit you, from any Concern in this *Dedication*. I am liable to answer for my own Faults, and shall be ready to confess and to amend them. What I write, in this Kind, is but the Amusement of a few leisure Hours, and may not be thought the worst way of filling up the vacant Time. This must

Dedication.

must be allow'd by you, who never can be Idle; but spend your whole Life, either to profit, or to please.

I am,

Sir,

*Beyond the Formality of a
Subscription,*

Your faithful Servant,

RICHARD COLLINS.



Nature Display'd.



AIL! sacred Sons of Wisdom!
whilst I choose
To sing your Thoughts, assist the
awful Muse,——
With Hallow'd labours, as, at
once, you show,

You serve that World above; and this below.
Who Reads your Works, with those of ages past,
Will think this Age, for Knowledge, is the last;——
Thro' Nature's mazes you have trac'd the Way,
What you discover, we can but Display.——
Alma, and Solomon, might stand the Test,
Was one less made to Doubt, and one to Jest.——
The Philosoph's, lost in the Poet's Song,——
His Metaphors are loose, Digressions long.
With faint Contempt, he writes of that old Greek,
Let Oxford Men, for Aristotle speak:
Cambridge, at last, with Europe, must agree,
That none has fix'd his terms, so well as he;
He says the Soul, as with the Body join'd,
Has no fix'd place, of Residence assign'd;

Eu

But in the Head, the Feet, the Hands, the Heart,
 Is whole in whole, and whole, in every Part.
 Def-Cart denies not, that the Soul is Join'd
 To every Part, not Matter, Unconfin'd.
 Yet finds a little Gland, within the Brain;
 That this Capacious Being must contain.
 The French-man has, with Def'rence to his Merit,
 Rais'd in his Scull, a Work-house for a Spirit.
 My compound Parts, I must Distinguish well,
 And which, are Acts of which, exactly tell;
 Else, like a Ship, unguided, I must rowl:
 Not knowing, what is Body, what is Soul.
 Whatever, then, within our selves we see,
 That other Bodies have, as well as we;
 We may Pronounce, and cannot, here, be wrong:
 That to our Body, only, must belong;
 And what, peculiar to our selves we find
 Exempt from other Bodies, that is Mind.
 The Soul has often been suppos'd to give
 Motion and Warmth, common to all that live;
 And that, when somewhere else, dispos'd to fly,
 The Motion ceas'd, which made the Body die:
 But yet the Soul her Office never leaves,
 She, to the last, to this her Mansion cleaves:
 Nor, 'till the broken Organs stop her Way,
 Takes she to wing, and leaves her House of Clay.
 With no good Reason, can it e'er be thought,
 That when the Body dies, the Soul's in Fault:
 But when, it once, has felt the fatal Stroke,
 And the chief Parts, by force of Death, are broke,
 'Tis, with this finer Frame, the self-same Thing,
 As with a Clock, when you have broke the Spring.
That

That no such Error may the Mind invade,
 I'll shew, in short, how curiously 'tis made, ———
 Who knows not, that his Body must contain,
 Besides the Stomach, and the Heart and Brain,
 Many a Nerve, and Artery, and Vein?
 Nature stands always ready to receive
 Whate'er, we eating to the Stomach give.
 And thence, by the Intestines, to the Liver,
 She soon conveys, what Aliment we give her:
 The succous Juices, there, not long have stood,
 'Ere changing Colour, they turn all to Blood,
 And mixing with the Blood, which there they find,
 Increase the Stock; and, soon, improve the Kind.
 And then, the Veins, as readily, we know,
 Into the *Vena Cava*, made to flow ———
 Her purple Stream, does in full Tide impart,
 To that great Sluice, the right side of the Heart;
 Hence by th'Arterial Vein, that flowing vas,
 Into the Lungs, again, is known to pass,
 Into the left Side, from the Lungs, it flows.
 And smaller Streams, and lesser Courses shows:
 But yet, in little Time, is known to go,
 From In to Outside, and from Top to Toe: ———
 The Muscles move the Body, but the Nerves,
 A Power have; that Sense and Motion serves;
 For these small Threads, are Tubes which Air convey,
 By these, the Animal Spirits find their Way,
 Up to the Brain, return, and thence 'tis we,
 Can Feel, and Taste, and Hear, and Smell, and See —
 But

But now the Senses, farther to descry,
 Of seeing first, consider here the Eye,
 Where four Tunicles, or Coats are found,
 By one, 'tis firm, within its Orbit Bound,
 The other three are proper, as they serve,
 The three-fold Substance of the Optick Nerve.
 This Clear and Hard, requires a double Name,
 Retains the Light, and guards the tender Frame:
 Whilst that beneath, is finer to display,
 The various Colours, Blue, and Black, and Grey,
 'Tis perforated wide, as is the Sight,
 To let in Objects, and direct them right,
 The last the Retina, like Net-Work drawn,
 With num'rous Threads, like those of finest Lawn.
 To these the various Sorts of Humours join,
 The Vitreus, Aqueus, and Christalline.
 And hence, its noble Uses to explain,
 Vision, is a Sensation in the Brain.
 Caused by the Optick Nerve, when moved aright,
 From any Object, by the Rays of Light;
 What wonderful Contrivance does appear,
 In the External and Internal Ear?
 See a strong Cartilage the Form begin,
 Most delicately cover'd with a Skin.
 Beneath, another Tegument you'll trace,
 That the whole Cartilage does fast embrace;
 Which after some few Folds, observe it well,
 Ends in that Part that's like a little Shell.

The

The Hole's a Tube, where Sounds distinctly come,
 And reaches from the Concha to the Drum.
 The Entry of the Labyrinth is fine,
 With all its Appertures, in Number Nine :
 As through the Folds, the Voice is forc'd a-long,
 Various Reflections, makes the Impressions strong :
 The Muscles Use, we here imagine well,
 Is to dilate, or to contract the Shell.
 Or as Anatomists, the Concha speak,
 As tremblings of the Air are strong or weak.
 The next Contrivance, wond'rous, let me tell
 The Nature, and the difference of Smell :
 To the Effluvia, there we must repair,
 Of Odorous Bodies mingling with the Air,
 And entering up the Nostrills, here, but note,
 How nervous, and how sensible the Coat :
 Thus the Alfactory Nerve, they quickly move,
 Their different Motions, different Natures prove.
 Affect the Brain, so that the Soul can tell,
 What Body stinks, or has the sweetest Smell.
 In the Papillæ of the Tongue are plac'd,
 Those Nerves which make, and difference the Taste ;
 As Bodies these affect, the Sense, 'tis plain ;
 Is pleasant, or ungrateful to the Brain.
 And thus by Nerves, we the same way reveal,
 How by the Touch of Bodies, 'tis we feel.
 But common Minds will not conceive from hence,
 How Nerves and Spirits, Motion serve and Sense,
 Where their corporeal Motion does commence.

Long

Long as we live, that's, while the Heart can beat;
 In it, there's lodg'd, a certain Fund of Heat, ———
 By Motion rais'd, the Blood, the Fire, feeds,
 And that our Members stir, from hence proceeds,
 The Heart's a Gland, contracts, whene're it wou'd,
 Throw off, Dilates, to take the affluent Blood:
 Hence comes its Pulse, and hence, our Pulse we prove:
 For 'tis by that, the Arteries must move.
 'Tis very easy, then, from hence to show,
 The Heart must Beat, as long as Blood can flow:
 And hence, as easily 'tis understood,
 That this, alone, gives Motion to the Blood;
 With which the Veins, and Arteries replete,
 All Parts have Vigour, and all Parts have Heat: —
 Of Blood the Vivid, and more subtil Part,
 Rais'd by the Heat, and Motion of the Heart,
 Flies up, and in its flight does finer strain,
 Thro' smaller Pores, 'till it has reach'd the Brain, —
 Again, the Stomach, Liver, and the Heart,
 (Not to observe of every other Part)
 (The famous *Harvey* makes the Notion good,
 Who, first, found out the Way to trace the Blood,
 Have all their Share to give, or to retain; ———
 Observe but this, the Theory is plain. ———
 At the Heart's Base, some small inserted Nerves,
 (Which every true Anatomist observes:
 Are, by the great Creator, wisely put,
 To make it open, and to keep it shut, ———
 Whose Cavities retain a constant Store,
 And, as the Pores let out, still take in more.
 That by the Muscles, all the Members move,
 Is seen so plain, 'twere needless, here, to prove.

But,

But, how do Muscles move? first this attend,
 Which 'ere Contract, their opposites extend,
 But, how, then, is the first Contraction made?
 By Spirits of the Brain, that most invade:
 For, shou'd more Spirits, on the others wait,
 The streight, wou'd crooked grow, the crooked,
 streight

Comes, there, then Spirit from the Brain, enough?
 To move, at once, Parts so exceeding tough?
 No! that determines, all the Spirits more,
 Which, in the Muscles, had been lodg'd before;
 And, drawing to its self, by filling this,
 Contracts, but leaves that, longer and remiss:
 Here, it remains, that I inquire the Cause,
 Why, Spirits move, by such unequal Laws?
 Why, now, to this Part, then to that, they stray?
 Why, more or less, is varied with the Way.
 What various Objects stand to ev'ry Sense!
 How variously, the Organs move from thence,
 Thus different Senses must of Course remain,
 Whilst different Motions, agitate the Brain:
 The Spirits move, as variously we find,
 Of various Parts, for various Ways design'd,
 The finer fly, the grosser flagg behind.
 From different Matter, variously dispos'd,
 Of which, 'tis plain, the Spirits are compos'd,
 Their Inequality is seen,—— and as,
 When Men drink Wine, its Vapours quickly pass,
 Into the Blood, and in a nimble Train,
 Pass thro' the Heart, to triumph in the Brain,
 Producing quicker Spirits, finer, more,
 The Man's all Life, who was so dull before.

B

How

How gay his Looks! how chearful is his Mein!
 His Body nimble, and his Fancy keen;
 And thus, the Blood dilating less or more;
 Performs the Change, from what it was before;
 For, tho' the Blood, which comes into the Heart,
 Is thither known to come, from ev'ry Part.
 It sometimes, quicker moves, sometimes, more slow,
 It has its Spring-Tides, and its Ebbs, as low:
 One Riv'let overflows, when one just by,
 Can spare but little, and is almost dry;
 That this must be, the following line will prove
 Just as the Nerves and Muscles, press, or move——
 And by Diversity of Parts, again;
 Of which, the greatest, doubtless, must remain.
 Must different Qualities, of course proceed,
 Thus, cou'd you see, one from the Liver bleed,
 You'd think, its Nature different, and suppose,
 It was no Kin, to what fell from the Nose——
 How all the Parts, of this so fine Machine,
 With Objects from without, and Springs within,
 Is mov'd (and as the Psalmist, well has said)
 Is fearfully, and wonderfully made:
 How can these Minutes show? what wou'd require
 Ages to tell, and Ages to admire——
 The Changes, by the Spirits Motion made,
 Cause, that the Brain, they differently invade;
 And, when it happens, that one single Pore,
 Is open'd more or less, than 'twas before
 By Action of the Nerves, (for here, observe)
 That their Employ, the Senses is to serve,
 This, in the Spirits, soon performs a Change,
 Their Motion is disturb'd, and out they range:

Then

Then to the Muscles, streight they take their way,
 And all the Motions form, we can display——
 So that, all Motions, known by the Event;
 That happen, or are made without Consent——
 As that we breath, we walk, we eat, we see,
 All that the Brutes can do, as well as we.
 Does, only, on Conformity depend,
 Of Parts of Nature, form'd for just this End——
 But here, tho' steep, and difficult the Way,
 How long to find! and oh! how short the Day!
 The Muse delighted, yet, with careful Pace,
 The Functions of the Soul, attempts to trace——
 And now! that all the Functions, I have shown,
 Which are, the Bodies only, 'twill be known,
 That nothing can, remain in us, which ought,
 To be ascrib'd to Soul, but only Thought.——
 This fruitful Parent, has a boundless Store,
 Still she springs forth, and never can give o're,——
 Tho' no Arithmetick her Numbers finds,
 We may divide them, into these two Kinds,
 Actions and Passions of the Soul,——but say,
 Since these for Terms you fix, pray, what are they?
 Those, then, which Actions of the Soul I call,
 Are all our Wills, for these, directly, all
 Come from the Soul, and howso'er they bend,
 As thence they come, they on the Soul depend.——
 The Passions, comprehend, of every kind,
 Perceptions, Thoughts, which in our selves we find.
 For, oft the Soul, is not to make them meant,
 But takes them from the Things they represent.——
 Our Wills, are of two Kinds; for some, 'tis clear,
 Are Actions of the Soul determin there:

As, when we wou'd love God, or are inclin'd,
 On immaterial Things to fix the Mind——
 Others, do only to the Body tend,
 That's their whole Bent, and there they have their
 [End.

For when we only will to walk, 'tis so ;
 That will, can move our Legs, and on we go——
 Perceptions, as from Sources they arise,
 Different, as Soul and Body, each supplies,
 Its proper Nature, thus, whate'er I will,
 That I perceive, what Fancy can instill,
 Or Thought inspire,— this to my Soul I ow,
 For, if I will,—— I, that I will, must know
 Imaginations, must not be forgot,
 Which from the Soul proceed of what is not,——
 If, for Example, something you devise,
 That does, from nothing, like Chimæra rise——
 But yet, Perceptions, many more, there are,
 In which, the Body, has the greatest share.
 Of what to their Production, chiefly serves,
 The greatest Part, is owing to the Nerves ;
 Some, that on them, do not depend at all,
 There are, these we Imaginations call,
 From which, in this, they differ, that they are
 Form'd, where the will, in forming has no share,
 From hence, we see, they never can be join'd,
 To Actions, which are Actions of the Mind——
 Thro' any Pores, that open to convey,
 The agitated Spirits, push their way,
 Up to the Brain, from thence the Motion streams
 In what, we call Illusions, and in Dreams,

And

And many simple Notions, which we take
 For Truth, which is but dreaming when awake,
 When yet, the wand'ring Thought, disdains to come,
 Amongst such low, unsettled Guests at Home.—
 The difference of Perceptions, may be seen,
 By Objects from without, and from within;
 Perceptions, which, from Things without us rise,
 Each Object, that produces them, supplies—
 The Organs of the Senses, feel the Strain,
 By Motion caused, and send up to the Brain,
 Th' alarm'd Nerves; which ne'er their Motion leave,
 Till they, at last, have made the Soul perceive.
 Thus we perceive, and thus, distinctly tell;
 When the Fire flames, and when does sound the Bell,
 But, yet, Perceptions, many more we find;
 Which to our Bodies, only are confin'd.
 Of these, from Nature, we may learn the first,
 The strongest come, from Hunger, and from Thirst.—
 Here all the Appetites of Nature fly,
 Tell what they want, and call for a Supply.
 To these, and many more, add Grief and Heat;
 Affections all, that in our Members meet.
 And, from no Objects, from without us rise.
 Thus, I, in sweat, perceive the Vapour flies,
 Thus, if my hands, before the fire, I hold;
 At once, I feel the Heat, I feel the Cold—
 These different Sensations, I receive,
 From that one Power, which my Nerves can give;
 And, when I am too hot, perceive the Air,
 Abate the Pain; and what's amiss repair.
 Without considering, once, what 'tis will make,
 Me pant with Heat, or, else, with Cold to shake—

Perceptions, only to the Soul, assign'd ;
 Are such, as from no other Cause we find
 Directly, can a diff'rent Sense convey,
 Like that we have of Anger, and of Joy.
 Imagination, which can only live,
 By a chance Motion, which the Spirits give,
 No less the Name of Passion, yet deserves,
 Than that Perception, which depends on Nerves——
 The self same Things, which to the Soul are sent,
 By Help of Nerves, the Spirits represent ;
 But, their Impressions, are not, near, so strong,
 So lively, so express, nor last so long,
 As those, which come into the Brain by Nerves ;
 And this to lead us, to the Passions serves.
 The nearest Cause, of Passions to explain,
 That's, as the Spirits mov'd, affect the Brain.
 But this, which is the last, cannot suffice,
 To show, where 'tis, their Differences rise.
 We must look back, to their orig'nal Race,
 And try, if their first Causes, we can trace——
 For tho' the Soul, must, always be believ'd,
 Determining to Objects, as conceiv'd ;
 Yet, shall the Body's, different Temper gain,
 A Power to impress ; sometimes, the Brain ;
 That we when glad or sorry, shall not find,
 To what our Joy, or Grief may be assign'd.
 Of these, the chiefest Causes, most, no Doubt,
 Are Objects, which the Senses move without.
 If, the Effects of such, to mind we call :
 They'll to their Causes point, and shew them all.——
 Observe ;— that Objects, which our Senses move,
 Raise not th' Affections, in our selves we prove,

So

So various, from their various Kinds, but arm
 Themselves, with Power, to do Good or Harm.
 As they, in this Form, to the Soul appear,
 We push them from us, or else draw them near. —
 For all the use of Passions, we conceive;
 Is to dispose the Soul, to take or leave,
 As seemeth best; and then the Will is bound —
 This also, in the Body, may be found.
 For there the Spirits, moving the same way,
 By which the Passions do themselves display, }
 Fitly prepar'd, does willingly obey. —
 In numbering the Passions, best to prove,
 How many Ways, they by their Objects move,
 Our Senses, but by various ways, I mean,
 Relating to our selves; — will here be seen —
 And if for the first Passion you inquire,
 I'll tell you why, I think, 'tis to admire —
 If any thing unusual, or that's new,
 Or different from what before we knew;
 Occurs, which we may, either hear or see,
 Or something, which we think, ought not to be,
 This Object, striking quick, before we know,
 Whether it can be good, for us, or no,
 Raises an odd Commotion in the Breast,
 Reason disclaims, and Passion has confess'd. —
 In a short Time, when the Surprise is o'er,
 We think on that, we wonder'd at before —
 Then the next Passion, in the Breast will rise,
 Is, surely, to esteem, or to despise
 For these, I think, we may, but fairly call,
 To admire the Object, as 'tis great or small.
 Love, as the Moralists have understood,
 Is a Desire, of what we think is good ;

And

And what is bad, or hurtful to relate,
 An Object, that must stimulate to hate. —
 A Swarm of little Passions, are confess'd,
 Scarcely discern'd, derivatives at best ;
 Let it suffice, that I explain the chief,
 Of Love, of Hate, Desire, Joy, and Grief, —
 And, since a List of Passions, I produce,
 You'll say, perhaps, pray tell me what's their use.
 Their Nature, then, if rightly understood,
 Will shew, they were, at first design'd for Good.
 Sometimes unguarded Reason they disarm;
 And then, their Motions, always, do us harm.
 Well govern'd Passions, help the Mind to steer,
 Reason confirm, and make it persevere ;
 Their deep Impressions, never wear away,
 Still they urge on, and force the doubtful Way.
 And when they happen to be bad, yet still,
 They press us forward, and so tend to ill. —
 Here, Love, and Hate, I therefore, now design,
 Describ'd before, exactly to define.
 Love's such a strong Commotion of the Soul,
 As takes away, its Power to controul ;
 The Spirits work, so fiercely on the Will,
 That this, can neither yield, nor those stand still,
 Till Love obtains the Objects of Desire,
 Then still the Spirits grow, out goes the Fire —
 As Spirits move the Soul, the self same Way,
 Hatred's produc'd, yet, with this Difference, say,
 These Passions opposite, reversly run,
 One strives to meet, what 'tother strives to shun —
 I say the Motions of the Spirits serve,
 To both these Passions, therefore here observe ;

How.

How differently, the Soul's own Motions tend,
 From those on Body, only, do depend——
 Desire, 'tis but a faint Degree of Love;
 By which, the Object, further we remove: ——
 And here, the Schools unaccurately fall,
 On what, they contrary, Aversion call:
 For sure, since here, no Good is to be had,
 But its Privation must, of Course, be bad;
 Nor any bad thing, can be understood;
 But its Privation, must be always Good:
 Are Riches my Desire? For instance, I,
 By that Desire, from Poverty must fly.
 And if, I seek for Health, of Course I run;
 I try all Ways, that may diseases shun,
 I think, 'tis plain, that the same Motion wou'd,
 Make me fly Evil, that pursues to Good.——
 In these, the nice Observer, all things tries,
 I'll shew, wherein, the only diff'rence lyes——
 Desire, when good, directs the whole Design;
 Love, Hope, and Joy, all ready finds to joyn.
 But, when Desire flies, from what is bad;
 It hates, it fears, it ever must be sad.
 But, if consider'd, equally to run,
 To this, and that, as equally, to shun:
 It, evidently, must appear, to be;
 A Passion, in its self, intirely free——
 Joy, is a sweet Commotion, of the Mind,
 When its desired Good, it can but find,
 In this Commotion, Joy is understood;
 'Tis all, the Soul possesses, from the Good:
 This, is the Life, of ev'ry pleasing Scheme,
 Without it, what's Possession, but a Dream?

Sadness!

Sadness! a Languor of the Mind, ingrate,
 Does strong Impressions, on the Brain create:
 Which deeper grow, if on the Soul they dwell,
 By Evils that we fear, and that we feel——
 The Causes, of these Passions, to explain:
 Comes Admiration only from the Brain?
 Yes; but the others, rise from ev'ry Part,
 Tho' chiefly, from the Liver, and the Heart——
 But, these great Funds, will not alone suffice,
 To bring the Blood, from whence the Spirits rise:
 And hence, it is, that all the Parts must join,
 Some, to produce, and others, to refine——
 From various Motions, in the Body seen;
 Whilst various Passions, move the Soul within,
 I thus observe, of Love, that when alone,
 When no great Joys exult, nor Sorrows moan;
 The Pulse, is more intense, more equal strong;
 Which proves, that Temper do's to Health belong.
 Hate, will a Temper contrary, bespeak;
 With Breast disorder'd, Pulse unequal, weak.
 Mixture of Cold, with a rough pungent Heat,
 Causes the Stomach, soon, to loath the Meat,
 Or turn, into ill Humours; what we eat. }
 In Joy, the Pulse, will, always, quicker move,
 Not so intense, and strong, as 'twill in Love.
 A grateful Warmth, is, readily, confess'd,
 By all the Parts, from this delightful Guest,
 And as the Blood, begins to mend its Pace,
 A beauteous Redness, paints the cheerful Face,——
 Grief, binds up fast, as 'twere with Chains, the heart,
 Congeals the Blood, and freezes every Part;

From

From her, what frightful, outward forms arise,
 How wan the Looks, and oh! how red the Eyes!
 The Index Pulse, her inward State will show,
 For that, is ever weak, and ever slow——
 No Passion, rages with so fierce a Fire,
 Nor stirs the Heart, so much as does Desire,
 It forces many Spirits, to the Brain,
 Which to the Muscles, quick return again.
 And thence, it is, that all the Senses prove,
 More subtil, and more quick the Members move;
 Since, then, the Passions, must be understood,
 From Motions of the Spirits, and the Blood.
 I'll show, what are the Motions, all require;
 With Love beginning, ending with Desire——
 Soon, as the Understanding can be meant,
 Some Object, to it self, to represent;
 Of Love, the Thought, which always must retain
 A mighty Power, to impress the Brain.
 Exerts it self,—— this strong Impression serves,
 To force the Animal Spirits, thro' the Nerves,
 Properly plac'd,—— to Muscles which are found,
 The Intestines, and the Stomach to surround,
 So, as to cause the Nourishment of Food,
 (By their Assistance turn'd into new Blood)
 Into the Heart, with Speed, to make its way,
 Which longer else, would in the Liver stay:
 Hence 'tis to other Parts, convey'd, of Course,
 In greater Plenty, and with greater Force.
 A stronger Heat this Blood must needs impart,
 Than, that which passes often, thro' the Heart,
 Th' Impressions, by these Spirits stronger made,
 Which the lov'd Object, to the Thought convey'd,
 Cause,

Cause, that the Soul, from this is hardly freed,
 And thus, of Love the Affection must proceed. —
 In Hate, the Spirits of the Brain retreat,
 With which, the Muscles being to replete,
 The Succous Juices stop, which from the Food,
 Soon as digested, ought to mix the Blood;
 And brings them to the Liver where we stile,
 The proper Place, contriv'd to lodge the Bile.
 That the Blood's Parts, there us'd to find discharge,
 Are not thrown off, but flow from thence at large.
 With that, the lesser Branches, do impart,
 First, to the Vena-Cava, then the Heart.
 Which causes an unequal Heat, the Blood will flow,
 When not well warm'd, and rarify'd, too slow;
 But burns, and soon dilates, and fires all;
 When, from that Part it comes, which joins the Gal-
 From whence, the Spirits v'ich invade the Brain,
 Have Parts, and Motions, of unequal strain.
 Thus the Ideas, which of Hate they find,
 Strengthen, — to bitter Thoughts, dispose the Mind.
 Joy unconfin'd, does to the Nerves impart,
 A Special Pow'r, for op'ning of the Heart;
 It opens, and dilates — from whence we know,
 The Blood, must quicker, and must finer flow.
 Thence Subtil, equal Spirits, must contain,
 Fitted to form, Impressions on the Brain.
 And these Impressions, cannot fail, to please,
 And fill the Soul, with Thoughts of Joy, and Ease,
 Sorrow contracts the Heart, each Part restrains,
 And checks the Blood, that moves within the Veins.
 From Stoppages, Defects, that are within,
 The outward, cold Dejection, must begin. —

But,

But in Desire, when the active Will,
 (Eager to press to Good, or fly from Ill,)
 Transmits the Spirits, quick, to ev'ry Part;
 That serves its Motion's, 'specially the Heart:
 Whilst an unusual Plenty, they receive,
 More Spirits to the Brain, again they give.
 Preserving, and confirming in it, still,
 The strong Idea, of this craving Will;
 Then, to the Organs pass, of ev'ry Sense,
 And soon, with Vigour, are convey'd from thence,
 To all the Muscles, Nature shall require;
 In order to obtain, what we desire. —

And now, that I have shown, with equal Care,
 How Passions move, and what their Movers are;
 The Musc, in deepest search, of Nature's Laws,
 Shall, of their Mover's Motions, shew the Cause.

That Union close, which always do's appear,
 'Twixt Soul and Body, intimate and dear;
 Causes, that one Corporeal Action, joyn'd
 To any Thought, or Motion of the Mind;
 Another, shall not, afterwards be brought,
 But shall produce, a like, the self same Thought,—
 As we may see, in those the Doctors make,
 With great Aversion, nauseous Physick take:
 If ought alike, in Tast, they eat or drink,
 The same Aversion's rais'd: nor can they think,
 On that Aversion, tho' the Cause is o're,
 But Fancy brings, the Tast they had before. —
 For the first Passions, in the Soul we find;
 When Soul begins, to be to Body join'd;
 From hence arise—that Blood and Juices flow,
 (Whose different Virtues easie 'tis to shew)

More kindly, and more Nourishment impart,
 Then usual, to revive, and warm the Heart.
 When there's no Want, there no unequal Strife,
 'Tis that preserves, the Principle of Life,——
 When the superior Parts, their Triumphs bear,
 The Stomach, and Intestines have their Share ;
 Their Agitation, will, of Course, excite
 Digestion quick, and raise the Appetite.
 The Liver, and the Lungs, assist no less,
 When Muscles of the Diaphragm press ;
 Then, will this Motion of the Spirits prove,
 Even, and just, and strong ; and fit for Love.——
 False, foreign Juices, to the Heart convey'd,
 By which the inward Heat, is much decay'd,
 Offend the Spirits, of the Brain, create
 Disorders in the Soul, which end in Hate.——
 Nature, from Life's first Spring, shall never meet,
 In some, with want of Nourishment, or Heat.
 Nothing she wants, so does for Nothing crave,
 Hence glows the Heart, and thus our Joy we have——
 Sometimes the Body, by Digestion bad,
 Wants Nourishment; and then the Soul is sad :
 The Heart's contracted Orifices give,
 No better, nor no more, than they receive ;
 Thus outward Grief, in Languishment is seen,
 When all the Blood, flows chiefly from the Spleen,——
 The first Desires, which the Soul cou'd find,
 When first it was, to this frail Body join'd,
 Was to refuse, or take, things bad, or good ;
 In this her Power, first is understood——
 Hence did the Spirits, their first Power commence ;
 To move the Muscles, and of every Sense,——

The

The Organs when the Soul desires, of course,
 The Body active grows, and moves with Force——
 And then the Body's Motions, are not long;
 Before the Soul's Desires, grow warm, and strong.—
 And, now, that we have, of the Passions seen,
 Whence they arise, and how are form'd, within:
 Their outward Signs, or Marks, I here describe,
 Of these, the chiefest, are the following Tribe——
 The Actions of the Eyes, and of the Face,
 As most they shew, may claim the foremost Place
 Changes of Colour, Trembling, Languor, La'ster,
 Swooning, Tears, Groans, and Sighs, consider after—
 No Passion can be found, but what describes,
 Some Turn, some special Action, in the Eyes.
 The stupid Slave, by's Master's Eyes can tell,
 When angry with him, or he pleases well:
 But tho' these Motions of the Eyes, are seen,
 And easily we tell, what 'tis they mean;
 Yet, to describe, exactly, every Part,
 From thence, tho' useful, is the Work of Art.
 For, in each Action, many Changes lye,
 From Motion, and the Figure of the Eye;
 Which, yet, are so particular, and small,
 The sharpest Sight, cannot distinguish all.
 But, what results from these, together join'd.
 The Observer, tho' unskill'd, will easie find——
 The same is true, of Actions of the Face,
 Which, with the Passions, keep a constant Pace.——
 Tho' greater, than the Actions of the Eyes,
 Yet, to distinguish, here, the Hardship lies——
 For Note—the Variation, here's so small,
 That shou'd you miss, to see the Tears that fall,

No Difference, in some Faces, you cou'd spy;
 Where, one was pleas'd to laugh, one vex'd to cry,
 Else, in the wrinkled Forehead, 'twill be shown,
 When the contracted Brows, have form'd the Frown;
 Before the Tongue, her usual accent slips,
 See the pinch'd Nose! observe the trembling Lips.—
 These various Actions, will be owing, still;
 To Nature, not so much, as to the Will——
 And all the Actions, of the Eyes, and Face;
 The Soul, will sooner change, than we can trace.—
 Strongly, inclin'd to this, if 'tother side,
 She takes, she can, at once, her Passion hide:
 And, so the Eyes, and Face, have equal Share,
 Affections to dissemble, or declare.—
 But, when some moving Passion, does prevail;
 We, not so easie, hide the red, and pale.
 In these, the Nerves, and Muscles have no Part,
 Their Changes, come, directly from the Heart——
 Which we, the Fountain of the Passions call,
 Preparing Blood, and Spirits for them all——
 The Redness, must be, always, understood,
 To come, from rising Tides, of venal Blood.——
 Just as, the Force, does more, or less prevail,
 The Face, is glowing red; or whiten'd pale.——
 As, from too many Spirits, or too few,
 The Trembling of the Body, must ensue——
 Here, the first Cause, appears from strong Desire,
 Or else, where Wine, or Anger, sets on fire.——
 The last, from Cold, which never can forbear
 To shake, the most, in Sorrow and in Fear.
 The Blood, corrupted, makes the Spirits low,
 And all the Parts, to move exceeding slow;

A lifeless Relaxation, is in all
 The Members--- which is what, we Languor call.—
 Swooning, and Death, so nearly allied,
 That, but some Latent Sparks, their State divide;
 In this, the Difference, is found to lie;
 The Fire of the Heart, extinct; we die:
 But, when some great Surprize, this Fire shall
 Choak up at once---, we swoon, and swooning fall--
 When, from the Heart's right Cavity, the Blood,
 Comes by th' Arterial Vein---the purple Flood,
 Puffs up the Lungs, and then the Air, of Course,
 Contain'd in them---must thro' the Wind-pipe force.
 And thus, in Laughter, there is always found;
 (Which inarticulate Voice we call) a sound. ———
 The Lungs by blowing in themselves, as well
 As the Air's going out, can soon impel.
 The Muscles of the Diaphragm, Breast and Throat,
 (For this, nor Sloan, nor Hænn, we need to quote)
 By this plain Way, their Motions we can trace,
 To the connected Muscles, of the Face:
 Thus, from the Action, and the Sound, are seen;
 What the Word Laughter, can be put to mean——
 Laughter, the chiefest Sign of Joy, may seem,
 And yet, we cannot laugh, in Joy, extreme:
 For, then the Blood, so full is made to flow,
 Into the Lungs, they have no Room to blow. ———
 A moderate Joy, does a fit Power impart,
 To ope the Orifices, of the Heart.
 You ever will, its truest Movements find,
 When 'tis to Hate, or Admiration join'd.
 Because, a Mixture, here is understood,
 Of certain-Liquor, to refine the Blood.

For which, 'tis found, no fitter can be seen,
 Than that sharp Fluid, which comes from the Spleen.
 When Hate, with Admiration, shall convey
 This Blood to the Heart, there soon it finds the way,
 To mix the Blood, that from all Parts arrives,
 Which Joy, still in abundant, Plenty gives;
 And thus dilates,—— as many Liquors show,
 When on the Fire put, the Motion's slow;
 But, Vinegar infus'd, will rarifie;
 Soon they puff up, and soon away they fly.
 That Fluid, from the Blood, the Spleen do's pour,
 Like Vinegar, is sharp, and like it sour.
 Since Laughter, does the blowing Lungs require,
 To raise it, we must hate, at least admire——
 And they, whose Spleen, shall happen to be bad
 Are oftner found, than others, to be sad:
 And, in their Lucid Intervals, express
 A greater Joy, and laugh with more excess,——
 Because the Spleen, can, to the Heart, convey,
 An heavy Blood, for Grief,-- a light for Joy.
 And, after Laughing, much, this Reason's had,
 Why naturally, we are found to be more sad——
 When from the Spleen, is drawn the thinner Part,
 The thicker clogs, and heavy makes the Heart ——
 Sometimes if angry, we to laugh incline,
 When to disguise that Passion, we design:
 Here, but distinguish well, the Point is gain'd,
 Betwixt the natural Laughter, and the feign'd.
 One we command, whilst t'other we obey,
 For this we lead, but that, will force its Way——
 We laugh, for Joy, when something does disarm,
 What caus'd our Anger, first, from doing Harm,
 Then

Then still, we laugh, and still, exult the more;
 If, of unthought-of Ills, the Danger's o're.—
 And thus, you see, true laughter does require
 That we rejoice, and with some Hate admire:—

And now, I think, 'tis Time for me to show,
 Whence 'tis we cry,— or how, our Tears do flow.—
 Excess of Joy, and Grief, the Powers deny,
 Requir'd to make us Laugh, or make us Cry.

But, as from ev'ry Part, the Vapours rise,
 Tho' from no Parts more quick, than from the Eyes;
 Because, the optick Nerves are very large,

Where multitudes of Arteries discharge:

And, as the Sweat, which on the Body lies,

Is Water, which from Vapours did arise;

So Tears are but the Vapours of the Eyes.

The self-same Theory that will explain,

How Vapours of the Air, turn to Rain,

With equal force of Reason, serves to show,

That when more plentiful, or mov'd more slow,

Tho' in a less Degree, the Vapours rise

From Humane Bodies, on the Surface lies,

The Water,— thence our Sweat, is cold and thick,

When we are very Weak, or very Sick. —

And now the truest Cause of Groans to tell,

They are but Air, the Lungs oppress'd expel—

But why should crying, found on every Stage

Of Life, be prone, to Infancy and Age?

For want of natural Heat, which forcing dries,

The Vapour Cold, lies stagnate in the Eyes:—

Just as the Sun, which, mov'd by different Laws,

All Bodies to itself, when shining, draws;

No

No sooner turns its Heat, and Sets, but all
 The rising Vapours stop, and downwards fall. —
 But some there are, and here, I'll tell you why;
 Who angry, will turn Pale, and cannot cry:
 These Symptoms of bad Nature, must appear,
 For such are always apt to Hate, and Fear:
 Whilst those, that easily can cry, will prove
 The most inclin'd to Pity, and to Love. —
 Tho' both suppose our Grief, the Cause appears,
 To differ wide, betwixt our Sighs and Tears:
 For when we cry, our Lungs are understood
 To have too much; when Sighs, too little Blood:—
 When some imaginary Joy, or Hope,
 Causes, again, the Orifice to ope,
 Of the Arterial Vein; and does restore
 The Passage, Sorrow had shut up before, —
 The little Blood, did in the Lungs remain,
 Passes, with speed, thro' this Arterial Vein,
 Into the left Side of the Heart: and there,
 Finds a new Spring, to quicken its Career:
 The Muscles move, 'till they affect the Breast,
 Whence Air, swiftly, to the Lungs is prest,
 To fill again the Place, the Blood did leave:
 And this, is what of Sighing, we conceive. —
 The Passions, thus consider'd; 'twill remain,
 That I their several Uses, here, explain.
 Surveying Nature's Law, the Reason's strong,
 To prove they must to Body, all belong. —
 When, to the Soul refer'd, you always find,
 'Tis, as the Soul, is to the Body join'd.
 So that, their natural Use, from hence, you'll see
 Is, to incite, and make the Soul agree,

To

To help, in all the Actions, which may serve
 The Body to improve, or to preserve. — — —
 In this Sense Grief, and Joy, are us'd, the first,
 Grief's the best Passion; tho' 'tis thought the worst. —
 The Soul, can no immediate Notice gain,
 Of what offends the Body, but from Pain,
 Producing Grief in her, then Grief will Hate
 Excite, of that which does this Grief create. — — —
 Thence tries all ways, which Reason can inspire;
 And to get free, will burn with fierce Desire. — — —
 The Soul, no other Way has understood,
 Of Things that offer for the Body's good;
 But, by a kind of Titilating Force,
 Producing Joy, then follows Love of Course: — — —
 Then comes Desire, what causes Joy, to get,
 And thus the Passions Rise, and thus they Set: — — —
 To serve the Body, you may always prove;
 Grief before Joy, and Hatred before Love;
 Because it more concerns us to repel,
 What wou'd Destroy, than striving, to excel,
 To acquire those things, that polish us, no doubt,
 But whose Perfections, we can live without.
 Here, since the Body, still, must be confess'd,
 The worser Part, in all respects, the least.
 This Law, our search of Passions, must controul,
 To mind those most, belonging to the Soul. — — —
 Here, Love and Hate, from Knowledge we can trace,
 And so of Joy, and Sorrow must take Place. — — —
 And when, our Knowledge, happens to be true,
 From what we love, as Good, will Good ensue;
 If what we Hate, as Bad, be Bad, this Test,
 Will prove the Passion Love, by much the best.

A Pas.

A Passion then, which never can excel,
 Determin'd rightly, and pursuing well,
 With her reviving Joy, delights to dwell.
 Our Hatred, then, 'tis plainly prov'd, by this,
 Can never be too small, nor too remiss;
 For no Inducement ever can be had,
 To hate a Thing, for only being bad:
 But stronger Reasons, will be understood,
 To draw, from Love, of its opponent Good.——
 Hatred, withdrawing, from some ill, we find,
 Removes us, from the Good to which 'tis join'd.——
 The Soul, from this privation, will conceive
 A quick defect, and so is mov'd to grieve.——
 If to the Soul, alone, respect be had,
 Joy must be always Good, and Sorrow Bad:——
 For these Affections are the all, that will
 To her accrue, from either Good or Ill.——
 Had we not Bodies, then, I'd dare to say,
 None cou'd too much indulge their Love and Joy?
 Nor ever Grief, and Hatred, shun too much;
 But now, are all the Bodies Motions such;
 And so, to these Affections, must belong;
 They hurt our Health, when Violent and Strong:
 But govern'd right, must all be understood,
 In this united Frame, design'd for Good.——
 The Muse, that hitherto, has try'd to find,
 How Body moves, and how affects the Mind;
 And, by the Passions of the Soul, has prov'd,
 How far the Soul is by the Body mov'd.——
 Thro' Natures Mazes, trac'd her labour'd Way,
 Parts to describe, Affections to display;

Her

Her Work, unfinish'd yet, pursues, to show,
 How Mind begins, and, how proceeds to know——
 The Mind's Perceptions, then, must first be sought
 The immediate Object, found in ev'ry Thought;
 Then, Knowledge only, is employ'd to see,
 Where our Ideas join, or disagree.
 If our Perception, thus, we can but show,
 'Tis plain, from hence, that we, as surely, know:
 Else whatsoever, loosely, we conceive,
 We do but Fancy, Guess, and scarce believe:
 Our Knowledge, then, consisting in the View,
 The Mind of its Ideas has, will shew,
 That different clearness of Knowledge lies,
 In the Perceptions of the Mind, that tries,
 And trying, has found out the way to see,
 How its Perceptions suit, or disagree;
 When, to agree, or disagree, are seen,
 But two Perceptions, without one between;
 That's Intuition, if we name it right,
 The Mind perceives the Truth, as th' Eye do's Light.
 On this depends all certain Truths, we know;
 For none, a greater Evidence can show.——
 But, when a Cloud of new Perceptions rise,
 As various Objects, but confound the Eyes;
 All these, in Order, we must Range, to see
 Which do to which belong, which disagree;——
 That's Reasoning, the Combat of the Mind,
 With Truth and Falshood,---- and from hence we
 [find,
 That after many Proofs, and much Vexation,
 The Conquest is, at last but Demonstration.——

Many

Many great Men, to think have been inclin'd,
 That this, to Mathematicks is confin'd :
 Because, the modes of Numbers, differ least,
 Are clear and perceivable confes'd ;
 And in extention, tho' the least Excess,
 Is not perceiv'd ; the Mind has yet no less
 Discover'd, how two Angles equal are,
 And Figures, just Proportion, can compare.
 But Quantity we mark--- and that is found,
 More sensible, than any Word or Sound ;
 Words will not always the same Sense retain ;
 Diagrams, on Paper drawn, the same remain.
 Here, the best Remedy, you can design,
 Against Uncertainty, is to define.——
 Let every Term, tell plainly what you mean,
 Then vary not your Terms, you'll Reason clean.——
 If to the highest Pitch we aim to raise
 Our Knowledge, these two, are the only Ways ;
 To get Ideas, clear as the Light ;
 To keep them constant, and to range them right.---
 All our first Notices, we have this Way :
 Our Senses first observe, and then convey.
 These, soon as offer'd, to the Thoughts are join'd,
 And quickly, set at work, the active Mind.——
 But, what from all her working, does ensue,
 How little do we know ! of Things how few ?——
 The intellectual World's capacious Frame,
 What Thoughts of Man can reach ! what Words
 [can name?
 And, on this Earthly Globe, we can but show,
 How, faintly, but a Point, with Pains we know.
 Bulk,

Bulk, Figure, Motion, we conceive with Ease;
 But, what proportion, yet, of each of these,
 To Bodies numerous, unknown, 's assign'd,
 Transcends the utmost stretch of Thought to find.
 Curious we search, for what from search withdraws,
 See the Effects, know nothing of the Cause!
 How many Things from our Inspection fall?
 By being too Remote, or else too Small!
 Think, the vast Distance of the World below,
 As Geographers describe, and Maps can show;
 And reading *Heylin*, only call to mind,
 What Regions vast! he's forc'd to leave behind:----
 Who does, but seriously, Consider this,
 Of Ignorance will see an huge Abyss.——
 'Twere endless, here, by Instances to prove,
 From Earth beneath, or from the Heavens above.
 How many Things there are, cannot be brought,
 Within the Compass of the narrow Thought.
 The Mind has yet Perceptions, just and clear,
 The Power of knowing Things, within its Sphere;—;
 And has, to Truth, Propensions very strong;
 Here let us see, what does to Truth belong?——
 Truth, in the first Place, is employ'd to see,
 How our Perceptions differ, or agree.
 When this is done, Truth bids us next take Care,
 To set them down, in Words, just as they are.——
 But there is moral Truth, which ever binds;
 To speak Things, from persuasion of our Minds;
 When Things are as we think, and as express'd;
 For metaphisic Truth, is this confess'd.——
 But here, I think's the proper Place, to show
 That Things Exist, how 'tis we come to know.----

D

By

By Intuition then, 'tis easy shown,
 We have, at first, the Knowledge of our own.——
 The Existence of a God, by Demonstration.——
 And of all other Things, by our Sensation.——
 Our own Existence, we perceive so plain,
 No further Proof it needs, nor can obtain;
 I think, I Reason, Pleasure feel, and Pain.—— }
 Can any one of these more certain be?
 Or all, than my Existence is to me.——
 If other Things I doubt, that Doubt will give
 Me Power, my own Existence, to perceive.
 And God's Existence must be soon confess'd,
 By that great Witness, lodg'd in ev'ry Breast.——
 He, who did Sense, Perception, Reason grant;
 Will suffer us, no Proof of him to want.——
 As long as we our selves shall with us go;
 So long, the Being of a God we know;
 Without considering, from whence I came,
 I know that I Exist, and something am.——
 I'm sure (my Knowledge further to deduce)
 Nothing, no real Being, can produce,——
 If therefore we, some real Being know,
 By Demonstration, evident, we show,
 That from Eternity, has something been,
 Since what is not Eternal, must begin;
 And what Beginning has, I know, must be
 Produc'd, by something else, from whence I see,
 What Being from another has, must find,
 All, that to Being any way is join'd.——
 Then, this Eternal Source, of Being, sure,
 Must be the Source, and Origin of Power.——

Our

Our Reason tells us, (Terms of Art aside)
 For here, untutor'd Reason, best will Guide ;
 That from Eternity, has something been,
 All Powerful, all Knowing (whence are seen)
 The other Attributes of God,-- from whence I mean }
 To show, that from Beginning, to the End,
 All knowing Beings, must on him depend.——
 And all their Powers, to act, or Skill to know,
 To him, their Great Creator, all must owe ; ——
 Creatures of Sense, have Organs form'd so fine,
 As prove a Power, perfectly Divine,
 Beings Inanimate, their Source imply,
 And tho', but Low, show Powers from on High ;
 Whilst we, by force of Reason, but Confess
 Who made the greater, must have made the less.--

In *Plato*, the *Athenian Moses*, shine
 All Parts of Learning, Civil, and Divine ;
 In *Logick*, *Ethicks*, *Physicks*, to increase
 His Skill, he chose the three great Wits of *Greece*.
 Blame not *Lucretius*, if his Thoughts are Bad ;
 But blame *Lucilia*, who first made him Mad.—
 Unhappy *Creech* ! whose eager Thirst of Fame,
 Translating--- turn'd his Glory into Shame. ——
 The Mischiefs done, unable to repair ;
 He like *Lucretius*, ended in Despair. ——
 What *Epicurus* does, for Truth Advance ;
 Of Atoms, jumbling into Forms, by Chance,
 None can Explain, who have not fully seen,
 What, by the Term of Chance, may Heathens
 [mean. ——

An Epicure, is always mark'd to be,
 A Glutton, Drunkard, or a Debauchee.

Yet, *Epicurus*, rightly understood,
 Who Pleasure makes to be the greatest Good ;
 Of Pleasure, surely, had the truest Taste,
 For, he was ever Temperate, ever Chast.——
 What hitherto has been, we may preface,
 Will be the Fate of each succeeding Age ;
 False Commentators will, for Truths explain,
 What Authors cannot be suppos'd to mean.——
 Thus *Sarum's* Reasons, which must all Convince
 Who love their God, their Country, or their Prince ;
 Nor Infamy, nor Libels, may escape,
 Whenever shall crawl out another S——e.——
 But Hence,— the Parts of Nature to display,
 Reason, the Will perverted, must obey ;
 And thus, the bold Objector dares to say,
 If your wise Maker does such Powers give,
 Why are not Human Senses, more than five ?
 Or if but five, Why not more Quick and Fine ?
 And Strong ? To prove the Artist but Divine.——
 Whence come Diseases, numerous ? and Why ?
 Is Man, so soon as Born, ordain'd to die ?
 Why's Life so Transitory, Short and Vain ?
 The Bounds of Matter, will the Cause explain.——
 Try, all the Ways you can, you'll find no more
 Than what your Senses, have display'd before.——
 No curious Searcher, yet, cou'd ever tell,
 One new discover'd Colour, Taste, or Smell, ——
 Had Man, to Senses five, an Hundred more,
 Thus he might wish, and never wou'd give o're.——
 Our Senses too, as perfect will appear,
 As this our State requires, or can bear.

Suppose,

Suppose, for Instance, that the piercing Eye,
 A thousand Miles, small Objects cou'd descry,
 Stop not the Woods, nor yet the Mountains Height?
 The convex Earth, alone, wou'd bound the Sight.---
 If of our selves, the smallest Parts we saw,
 We shou'd, perhaps, repine at Nature's Law;
 Start, at the ragged Scales, and bristly Hair,
 The smoothest Skin, wou'd then be shown to bear.---
 And, did a finer Tone, exalt the Ear;
 How many, when we spoke, must over-hear?
 What Secret, then, cou'd Politicians keep?
 Or, how cou'd we in quiet, Wake, or Sleep?---
 We, then, must Thunder's Noise, or Cannons dread,
 Which oft wou'd strike us deaf, and sometimes dead.--
 Our sense of Feeling, rais'd a few degrees,
 Wou'd rob the Body of its Use, and Ease:
 Man cou'd not Work, nor Burdens could sustain,
 Because, the slightest Touch, would give him Pain.--
 To Bodies, now deprav'd, must needs belong
 Diseases;--- but the first were Healthy, Strong.---
 Whilst, an unbounded Liberty, we take,
 We mourn Distempers, we our selves but make.---
 That Life's too short, what Mortal can complain?
 For if a thousand Ages shou'd remain, }
 'Tis yet a Scene of Sorrow, and of Pain.--- }
 But think! Eternity, as long appears,
 After a Thousand, as an Hundred Years.---
 Hence, more Attention, does the Subject claim,
 Whilst I, at once, survey the World's great Frame.--
 And here, — the gradual increase of Man,
 Of Countries, planted, how, and when Began?

Whilst, from Authentick Records, we can shew,
 Of Letters, and of Arts, th'Invention New :
 This, do's the World's Eternity confute,
 And prove it made in Time, beyond Dispute.——
 But why so late created, as appears?
 For what a Span, wou'd be six Thousand Years?
 To Ages, Numberless, have gone before?
 Attend but this, your Wonder will be o're.——
 Suppose, from Millions, we of Years cou'd Date
 The Time, when God did this his World Create;—
 Yet, since Creation, must be fix'd to Time,
 Where Numbers cannot count, nor Thought can
 A vast Eternity remains behind; [climb,
 And thus, no Time could ever be assign'd.
 So soon, but the Creator, sooner still,
 Had made the World, by his Eternal Will.——
 God's Time, and Manner, must be then confess'd,
 Most fit for working, and his Works the best.
 If, but to both the Globes, we cast an Eye,
 Wonders of Use, and Beauty, we espy.——
 The Sun's vast Body, most immensely Bright,
 Bestows on all the Planets, Heat and Light;——
 Warms all the Seeds, which in this Earth we lay,
 Without the Sun, a dead dark Lump of Clay.——
 To Natural Causes then, may we assign,
 That what we call the Sun, has Power to shine?——
 Or, have we Reasons, that his shining prove,
 From those great Bodies, which are plac'd above?
 No, for the Planets might as well have roll'd;
 Altho' the Sun, like them, was Dark, and Cold.——
 But then, what horrid Darkness must have reign'd,
 What Desolation! on the World obtain'd!——

It

It therefore must, at last, be understood,
The Choice of some great Being, Wise and Good ;--
That from the Central Sun, shou'd Warmth be
[found
And Light, and Life, to all the Planets round ;——
Without observing, how the Planets move,
How all their Motions, their Director prove ;
Tho' what must follow, easy 'tis to show,
Were they to move more quick, or but more slow.
Some wou'd their Orbs Contract, and nearer run ;
Others wou'd range, too wide, to feel the Sun ;
Hence, this sad Fate, they never could avoid ;
Their Constitution would be quite destroy'd.——
The Power of Life, each Planet must withhold ;
For what could live, in so much Heat, or Cold ?
And if of Matter, such vast Masses were,
Or, to the Sun, or to themselves, more near ;
When, in this Interval, so wide, we view
Disturbance great, what greater must ensue ?
But, our own Earth, let us Consider now !
The Benefits, that to its Site, we owe :
And, if this Distance, stands the truest Test,
For Plants, and Animals, to thrive the best ;
If, farther from the Sun, or else more near,
We could not, Flesh and Blood, endure to wear,
The great Creator's Wisdom must appear ;
The Earth, with double Motion, must revolve,
(As from the Doctrine of the Sphere, we solve ;)--
For, once a Year, 'tis carry'd round the Sun,
The Wheels of its own Axis, swifter run ;
And, in but twenty four Hours Space
The Equinox hath turn'd, renew'd the Race.——

From

From Motion, thus Vertiginous, is Found
 The Cause of Day, and Night, to all around. —
 Of this Rotation, both the Spheres may boast,
 That one's not burnt with Heat, one starv'd with
 [Frost: —

But does the System of the Heavens, cause?
 Or else do Motion's, necessary Laws?
 That thus the Earth is mov'd? No, here, again,
 The Motion of the Moon, will this Explain; —
 For she, the self-same Way her Course does run,
 About the Earth, as the Earth about the Sun. —
 Yet the same Face, to us, she still reveals,
 Nor once, on her own Center moving, Wheels. —
 In every Month, indeed, her Course is Run,
 And all her Globe, turn'd fairly to the Sun.
 From this her Motion, we may, truly say,
 That she enjoys alternate Night and Day;
 One Day of hers, computed, will be seen,
 Equal to Days and Nights of ours fourteen. —
 The Earth's Diurnal Motion, take away,
 One half of it, could never see the Day;
 To nice Observers, easie will appear,
 The different Motions, for the Day, and Year. —
 But, what directs the Earth to each of these?
 What to Celerity, appoints Degrees?
 Suppose, (for what shou'd various Motions fix?)
 The twelve Months Travel, should be made in fix;
 From hence, what Inconvenience can you shew;
 The Seasons, wou'd be twice as short as now;
 No Corn, nor Fruit, could then to Ripeness grow. }
 The same, retarded Motion, proves as Strong,
 The Seasons, in exact Proportion, Long. —

Hence,

Hence, Heat and Drought— the Earth with Pain
[wou'd bear,

But one small Crop, to serve the double Year——

The Earth's Diurnal Motion, fancy here,

To make twelve Circuits, only, in a Year,

Then, every Day and Night are fairly seen,

As long, as now, we can observe fifteen.——

To Bus'ness disproportion'd, thus, they wou'd,

Deny Refreshment, fit for Flesh and Blood.

And then, if quick, the Motion posts away,

Few Hours make an Equinoctial Day——

What Progress cou'd? in our Affairs be made?

If Darkness, did the Light, so soon, invade?

What Artift? the Earth's Axis, did project?

To the Ecliptick's Plane, not plac'd erect?——

But, towards it, by such Degrees, inclines,

To keep the same Direction—— these designs,

Cause all the needful Changes, that appear,

In Length of Days, and Seasons of the Year——

Else, had the Sun, to us, not nearer been,

Than now in March, or in December seen——

The Inclination, makes him further run,

Else wou'd these Northern Nations, be undone——

Suppose, the Axis of the Earth, you find,

Still to the Body of the Sun inclin'd;

This wou'd Variety of Days bring forth,

And Nights, and Seasons, over all the Earth——

But every Country, wou'd be fixt, this Way,

To one Diversity, of Night and Day.——

And, as the Season, went its constant Round,

No Alternation, ever cou'd be found——

Thus,

Thus, different People, then must mourn their fate,
 Stop the swift Day ! O fly ! the tedious Night !
 Whilst, others worn, with the Fatigues of Day,
 Wish for the Night, and court its longer stay, —
 The Climates, in extremes, no Seasons hold,
 One's scorch'd with Heat, whilst t'other's starv'd
 [with Cold,

The Axis of the Earth, but here conceive,
 Her constant Inclination, once to leave.
 The nodding Pole, wou'd tofs Confusion sad,
 No Food, no Health, no Life, cou'd then be had —
 Some Fancy, if had been, but Fancy vain,
 The Poles erect, to the Ecliptick's Plane,
 That a perpetual Spring, wou'd then be seen,
 The Weather still, be calm, the Skie serene. ---
 Thus, we, a Paradise might find below,
 No Pains cou'd feel, nor no Diseases know —
 This Notion, sure, if we pursue it right,
 Is not the Searcher's Thought, but Poet's Flight.
 Who views the Figure of the Globe, may tell
 That they, who under the Equator dwell,
 Or near -- this Spring -- for Summer, much too great
 Wou'd feel, nor cou'd endure the raging Heat. ---
 And, for the Northern Countries, which are known,
 Of greatest Note, (excluding not our own)
 They must a Season have, with force to bring,
 Greater Degrees of Heat, than can the Spring.
 They want a clearer Skie, with longer Days,
 A nearer Sun, with less oblique its Rays,
 Else, Nature to produce, must soon decline,
 No more the Corn, no more the fruitful Vine. —
 Consider here, which will be understood,
 As most conducing, to the publick Good ;

A daily Distribution equal made ;
 Of the same equal Heat, the Year convey'd :
 Or, whether, this, the best we must confess,
 To have more in Summer, and in Winter less—
 If, then, we find our Situation such,
 That, here, the Summer's Heat is not too much.
 A Distribution, wou'd abate it, so,
 As nothing cou'd, to any Ripeness grow !—
 The Air condens'd, or much expanded more,
 All Animals to breath, wou'd soon give o're—
 Then, what condenses ? or expands the Air ?
 The greater, or less Weight 'tis caus'd to bear—
 Thus, had the Atmosphere, much greater been,
 Or less, as very easie may be seen,
 This, to its lowest Region, must assign ;
 A Texture much more thick, or much more fine.—
 Which, (from the Laws of Physicks) we observe,
 Wou'd not for Life, nor Vegetation serve—
 Why ? was the Ocean, made so vastly wide ?
 Why o're the Earth, so many Rivers glide ?
 Are not such Deluges of Water found,
 To take up too much Room, and hide the Ground—
 Of these, 'tis known, besides, their various Use ;
 What they, convey, what Riches they produce.—
 Besides, 'tis plainly prov'd, from Nature's Doom,
 The Earth's Inhabitants, can want no Room—
 The Constitution of the Globe, will show,
 Why Water is so much— why made to flow.
 Consider ! what all Bodies must contain,
 Consider ! what the Sun exhales again,
 To feed the Plants, with Dews and showers of rain—
 'Twas thought impossible, 'till understood,
 In how few Minutes, circulates the Blood : But

But, how the Water circulates, cou'd we,
 That Vital-Blood of Earth's swift Period see,
 Cou'd, we computing, that great Mass, have known;
 Which by the Rivers of the World, is thrown
 Daily into the Channel of the Sea;
 Here, wou'd more Cause, for real Wonder be.——
 Why? so uneven, do's the Earth appear?
 Marks of Disorder, why her Surface bear?
 Whence Hideous Mountains? Craggy Rocks that
 [show
 Like Humps deform'd, to Plains and Vales below.--
 The Vapours these condense, the Rains, they bring,
 And make the fruitful Vallies, laugh and sing.——
 Plants they produce, which no where else will grow,
 And more, to these, we all our Mettals owe.——
 Profit a fide--- the Pleasure's not so great,
 Arising from a dull unvaried Flat,
 As when, from Hills, the Vallies we espie,
 Whence various Scenes, and Prospects please the Eye,
 Let Milton's Paradise for this be brought,
 Who writes, in Verse, as lofty as his Thought:

For Earth has this Variety from Heaven,
 Of Pleasure situate in Hill and Dale.

The most material Parts, I fain wou'd know,
 Of what the Heavens, Earth, and Waters show.——
 Motion, exceeding quick, produces Light;
 But, it must vibrate, very short, if right,——
 The Space between, must not obstruct the Way,
 But first receive the Motion, then convey——

A Ray of Light, compleats its nimble Race
 From Sun to Earth, in near ten Minutes Space.——
 Suppose, Right-lin'd, and Parallel, of Rays,
 A number Infinite--- this Light displays——
 To the Degrees of the refracted Light,
 Each Ray, a different Colour, shows the Sight;
 Rays least refrangible, deep Scarlet, you
 Will see; the most refract, a Violet Blue.——
 But many other Colours, hence, are seen,
 Besides the Chief, Blue, Yellow, Red and Green.——
 By Composition made,—— thus will ensue,
 Green, if you mix but Yellow with the Blue.——
 Whiteness, between all Colours is a mean,
 So Ting'd, with all alike is easie seen.——
 Whilst every Colour, will require more,
 To over-power what it had before.——
 Of Vegetable Colours, next to tell:
 How they arise, and where their Causes dwell.——
 'Tis, as the Sulphur, Acid, Alkaline;
 Are more or less, Dissolve, or Combine.——
 Hence the Blood-red, may with all Colours vie;
 None so much Sulphur has, nor is so High.——
 The sudden Change of Colours, next to see:
 Let a large Drop, of Violet's Syrop be
 Drop'd on white Paper, it will spread, and shew;
 Tho' not a fine, a tolerable Blue.
 An Acid Spirit drop'd, fine Red is seen;
 A Volatile, 'tis chang'd, a lovely Green.——
 The Colours of the Rainbow, and the Size,
 The Various Sorts; and where the Distance lies;
 Hence to describe,— Let the Sun's Image be,
 The Cause, of the first Iris, that you see.——

E

Reflect

Reflected (*Newton*, best does this explain)
 From Concave Surfaces of falling Rain.——
 Suppose the Drops, innumerable, Small,
 The Rays, on Objects, Parallel, to fall.——
 And twice refracted, not diverge, but lie
 In the same Distance, 'till they reach the Eye. ——
 The Secondary Iris, that I call,
 Where the Sun's Rays, do more obliquely fall;
 So two Reflections makes, before each Ray
 Can thro' the Drops of Water, force its Way. ——
 Of Iris's, tho' five, or six, have been,
 Yet seldom, more than two, at once are seen.——
 For the Sun's Force, the Medium will break,
 Thus grow its Rays, attenuate and weak.——
 The different Refraction, serves to show
 The different Size, and Colour of the Bow;
 And of Refraction, thus, by each Degree,
 The Rainbow's Distance, from the Sun you'll see;
 For those, which from the Sun, are more remote;
 Adorn'd with Purple Colour, you may Note:
 But the more near, as may the first be said,
 You always may observe, by shining Red.
 Eclipses, Deprivations are of Light,
 When either Sun or Moon, is hid from Sight.——
 If these great Lights, in the Sun's Orbit join,
 Or in the Ecliptick, tho' the Sun must shine,
 'Till th'interposing Moon has pass'd away,
 His Face is veil'd, no Light can here display.——
 In the same Orbit, if oppos'd, is seen,
 The Moon made Dark; by shade of Earth between.——

Whence

Whence comes that rumbling Noise you Thunder

[call ?

Whence Lightnings flash? or raging Fires fall?—

Clouds, may be over one another laid,

Like Boards, or Planks, thus how the Noise is

[made :

The Motion of the Uppermost will show ;

Sliding, with mighty Force, on those below.——

Or, when, a warmer Air, from the Height,

For what condensates, must increase the Weight ;

The highest Parts, press downwards, first, and they

Force all before, that happen in the Way.——

And thus, with Noise, as Terrible, as Loud,

They rush, at once, into the lowest Cloud.——

So, from the Alps, the Snow, in May is found

To fall.— The Valleys Echo, Thunders sound.——

And hence, I think, the Reason's also clear'd,

Why Winter's Thunder's here so seldom heard.---

For then the Clouds are bound with Cold, but now,

The Cause of Thunder's different Sound to show.---

'Tis as the upper Clouds, their Movements make,

Or Swift, or Slow, what Parts they with them

[take ;

For sometimes, one, another will succeed ;

At others, all at once, will force with speed ;

And, as the lower Clouds, are Great or Small ;

Or Thick, or Thin, or forc'd upon withal ;

The Sound by these, Increases or Declines.——

But, what the Cause of Lightning defines?

And how it is Ordain'd? that sometimes, we,

No Thunder heard, shall yet much Lightning see?——

At others, when, no Flashes will appear,
 An hideous Noise, shall yet disturb the Ear?——
 When, after some great Drought, and raging Heat,
 The Sky, with Exhalations is replete :
 More, than the Sun's Attraction, this requires,
 The stronger Force of Subterranean Fires;
 These subtil Particles, together crowd ;
 Fire, by their Motion, e're they reach the Cloud :
 But make no Noise, for in their nimble Course,
 No Clouds can meet, much less resist their Force.
 If rais'd, by slow Degrees of Heat, there are,
 Some fainter Exhalations in the Air ;
 But not of Strength enough, to flame out bright,
 So, can exhibit nothing to the Sight.——
 They yet can force the Clouds, and thence 'tis we,
 A roaring Noise must hear, but nothing see.——
 Sulphur and Nitre, urg'd, will upwards fly,
 As long remain, as is serene the Sky.——
 And thus, vast Bodies will together join,
 And still increase their Force, as they combine ;
 'Till by the Air's agitating Powers,
 They visit Earth again, in flaming Showers?——
 The Terror of the Senses, who can tell?
 When Fire flies, and burning Sulphurs smell?
 You'll not, in Sal Volatile descry,
 Nor Aqua-Fortis, Parts that swifter fly,
 Or penetrate so deep,—— else what has made
 (The Scabbard, when untouch'd,) the melted Blade?
 The Buckles spoil'd, what Shoe, or Foot has mis'd?
 Only the want of Power to resist.——
 But what is that, the Thunder-Bolt you call?
 Its Texture why so hard? oblique its Fall?

The

The finest Parts, in subtle Flashes gone,
The Gross, by sudden Cold, are harden'd Stone.
Some Properties of Iron, join the Cast,
To make the Stone so hard, of Texture fast :
From the Clouds Sides, the slanting Fires fly ;
Thus, threaten Dangers most, to Places High.——
How thickest Clouds are broke, let this Explain.——
The Noise succeeds the Flash,—— and thence the
[Rain.——

Comets, or Blazing Stars, by th' Ancients were,
Thought only Meteors, burning in the Air.——
This *Aristotle*, first, for Truth receiv'd;
And his Disciples, every where believ'd.——
Modern Astronomers, a better Way,
Found out, their Place and Nature to display.——
These, to the Planets Regions, unconfin'd.
Above the Orbit of the Moon, have shin'd.——
Their Light is but the Sun's reflected Beams,
Which from themselves, point back in flaming
[Streams.——

Their Bodies, like the other Planets, are
Solid, Compact, and fix'd,—— for if they were
But Meteors,— they must Burst, and Burn, and Run,
When passing, as they do, so near the Sun,——
Immortal *Newton*, here with Art prevails,
And best designs their Heads, and draws their Tails ;
From all his Labours, these at last has found,
Excentric Planets, that the Sun move Round.——
Stars we call fix'd,—— yet move with equal Pace,
But never Interfere, nor change their Place.
Their Distance from the Earth is so immense,
No Influences here, can they dispence ;

Of these, a little will suffice to say;
 Should you, thro' Glasses, Gaze your Eyes away;
 Your Skill, to greatest Artists, when resign'd,
 They'll say, you sought for what no Man can find.—
 Then, to a lower Sphere, confin'd, I'll show,
 The Vapours different fall, and first the Snow.—
 If drops of Rain, descending, chance to find,
 A colder Air, or a soft freezing Wind;
 Each Drop, into an Isicle will Freeze,
 And shoot forth Points, which regular one sees:
 But, intermixing, with a warmer Air;
 And wasted quicker, than their Parts will bear;
 They Thaw, and Blunt, loose, or retain their Frost;
 As Climates vary, or their Motion's crost:
 And thus, the Flakes of Snow, are seen to fall,
 Some hank'd, and clung, distinct, and large, and
 [small.—

If you, the Nature but of Ice regard,
 Snow, tho' when touch'd, seems soft, 'tis truly hard;
 The Points and Edges touch'd, that Instant Thaw,
 Else, wou'd like Lancets pierce, and Blood would
 [draw.—

If Snow be Ice, a Body hard, and dense,
 Its Lightness, how may we account for hence?—
 How is Leaf-Gold so light? as not to bear;
 But Rides upon the softest Breath of Air.
 The heaviest Bodies, you may lightest call;
 Make their Dimensions large, their Matter small.—
 But Snow, tho' Hard, yet is not therefore White
 But having Parts transparent to the Sight;

When

When mix'd together, they a White appear,
As Froth and Glass,—— the Soft and Hard are

[Clear :——

The Snow, almost dissolv'd, to falling Rain,
Meets with a sudden, and sharp Wind again;
That on the larger Drops, can so prevail;
As bound in Ice, they shower down in Hail:
If Cold intense, the Drops, when form'd, has found,
The little Globes of Hail, are Clear and Round;
But if it takes the melting Flakes of Snow;
Their Sides irregular, and rough their Show:
And thus, the Hail is smaller seen, or great,
From the Degrees, and Turns of Cold and Heat.——
The Cause of Freezing, the Cartesians say,
Is, when th'Ethereal Matter goes away
Out of the Water's Pores; and then they show
The finer Parts, too weak, to make it flow: ——
But, 'tis more like, its Freezing must begin,
By particles of Cold, that enter in.——
Which croud so fast, and all its Pores so fill,
That wanting Room to move, it must stand still. —
The Motion being stopp'd, they in a Trice,
Can wedge it, as it were, to harden'd Ice. ——
The Sun, abateing its attractive Force,
The lower Exhalations fall of Course.——
If sudden Cold attacks them, in the Time
They fall,—— the Mist will curdle into Rime.——
When High the loaded Vapours cannot rise,
A Cloudy Stink, offends your Nose and Eyes;
Thus Fogs are most, and most Unwholsome found,
From very Low, and Wet, or Marshy Ground.——

When

When faint Explosions, in the lower Air,
Which rarely (but by their Effects appear)
On Trees or Plants, the subtile Vapours cast,
They Fade, and sometimes Die;—— we call this
[Blast.——

'Tis from the want of Sun to raise them High,
That trembling Lights, and Flashes, we espy;
That Exhalations, their weak Fire shoot forth,
In Corruscations, to the colder North.——
Wind is the Stream, or Current of the Air;
We feel its Force, wee see, and often fear:
Such strange Effects, incite the Cause to know,
This, first I'll try, and then its Uses show.——
Can it then Rise from the Earth's nimble Way?
Whirl'd round, upon its Axis, every Day?
By which the Globe, turn'd to the East, we find
The fluid Parts of Air left behind?
So, in respect of the Earth's Surface, they
Move to the West,—— but if 'tis thus, you'll say,
Whence constant Calms, are then observ'd to be,
So near th' Equator, in th' Atlantick Sea?
Why Western Winds, are felt near Guinea's Coast?
And Indian Seas, their true returning Boast?
Here, to the Laws of Motion, let's repair;
The Properties of Water, and of Air:
On these, how Acts the Sun, whilst ev'ry Day,
O're Oceans wide, he stretches on his Way?
The Nature of the Soil, consider Right,
And of adjoining Continents, the Site.——
The Sun's Meridian Heat, expands the Air;
It takes more Space, from thence the Motion's clear;
And

And then, its lower Stream, is, by the Sun,
 Forc'd to the West, his constant Course to run.——
 Thus the East Wind is form'd, its pressure show,
 On all the Air, of the Seas below.——
 How Parts impell'd, before each other run.
 Nor stop their Course, 'till next return of Sun ;
 Which their lost Vigour, will again restore,
 'Twill blow, from the same Point, it did before.——
 If the whole Surface of the Globe were Sea,
 (Causes suppos'd, prove what Effects must be.)
 The general Winds, which variously are hurl'd,
 Wou'd then blow, regularly, round the World.——
 But now ! presents, a discontinu'd Scene,
 Of parted Seas,—— vast Continents between :
 Mountains stupendous High ! and Valleys Low.
 Of different Soil,—— which the Winds Changes
 [show.——

If near the Sun, be flat, and low, the Land ;
 Or like the Lybian Deserts, full of Sand,
 Its Beams reflected, thence with raging Heat ;
 Fierce the Attack, more furious the Retreat ;
 Must rarify the Air, too much : if more,
 That's Cool and Dense, shou'd not with speed, restore
 The Æquilibrium——Hence the Guinea-Rains ——
 This the Monsoon's Phænomenon explains.——
 In April, when the Sun its Rays sends forth,
 To warm the Countries, lying to the North :
 From the South-West, that Wind its Course will
 [show :

And thence, unvaried, 'till October blow.——
 But, when more Cold, invades the Northern Air,
 As Sol, does to the distant South repair ;
 Then,

Then, the Monsoons, the former Course refrain,
 And blow, North-East, 'till April comes again.—
 Their Uses next — what, cou'd the Work Compleat ?
 To Cool, sometimes, the Sun's excessive Heat :
 Where panting Animals, can scarce have Breath,
 And Trees, and Plants, are almost scorch'd to Death.—
 All these destroy'd, what Countries may be found,
 Where, without Wind, the Sun must burn the
 [Ground.—

Vapours, of various Sorts, in Steam perspire,
 From Matter boil'd, on Subterranean Fire.
 About the Surface of the Earth, they play,
 'Till by the Sun's Attraction, forc'd away.—
 These rising fast, Obstruct, and Cloud the Air,
 Wou'd Stink, and Poison; shou'd they stagnate
 [there :

But, the Wind's rapid Motion, fierce, and strong,
 Their Texture Breaks, and wafts them quick along,
 To proper Regions; and, as thus they fly,
 Sweet grows the Air, and Serene the Skie.—
 Next, by the Winds, the Clouds are carry'd forth
 To Water all the Parts of distant Earth :
 For, here observe (the Theory is true)
 The Water, drawn from Earth, is only Dew.
 'Tis from the Sea's great Fund, that Stock must
 [rise,

Which, all the Vegetable World supplies.—
 Hence, Continents, from Sea remote, 'tis plain,
 Cou'd nothing bear: for never cou'd have Rain:—
 The Waters, all their purging Force derive,
 From that quick Motion, which the Wind must give ;
 Cease

Cease once the Winds, the End of Rain draws nigh,
Then, all the Rivers, quickly must be dry.—

The stagnate Seas, to thick Corruption turn;
And (as Friend *Burnet* says) grow fit to burn.—

The Riches, gain'd by foreign Trade, are known,

But, to no Nation, more than to our own.

This fruitful Isle, indeed, would still produce,

A noble Plenty, fitted to its Use:

But, what vast Tracts of Land, if Trade shou'd

Would soon want more, than Corn, and Wine, [fail,

[and Oil.]

For without Wind, no Ship at Sea could Sail.

Winds Cleanse the Earth, and Sweeten where they

[Blow.]

Dry Corn to Harvest, and the Ground to sow.—

In mending Roads, the Work is sooner done,

In Northern Countries, by the Wind, than Sun.—

They loose the Ground, the Water's way renew,

And give the Fibres, room to shoot anew :

Thus Trees oppress'd, relieve ; their Strength re-

[pair,

And make them finer Blow, and thicker Bear.—

Tide, when Consider'd, will appear to be,

The Ebbing, and the Flowing of the Sea ;

To speak of Seamen's Terms, wou'd be in vain.

Because, the Words alone, themselves Explain.——

If I, the Causes of the Tides, can show,

Degrees, and Times, 'tis all we need to know. —

All Bodies to the Center tend, but all,

In different Places, cannot equal fall,

And

And thus (as *Newton* has observ'd before)
 The Force is less, as is the Distance more.——
 And to the weight of Bodies, 'tis as clear,
 The swiftness of their Fall, proportion bear :
 For, on the Surface of the Earth, will all
 Things, sixteen Foot, in but a second fall,
 You'll find, before the Observation's Done,
 At two Diameters above, but one ;
 In the same Time,—— and from the Center more
 If distanc'd still,—— the Calculation's o're.——
 But here observe, you'll see the Use on't soon,
 If from the Earth, as distant as the Moon,
 A Body falls, 'tis sixty Times as long,
 As at the Surface of the Earth : as strong,
 This Rule of Gravity, from Distance, we
 In Sun, and Moon, and all the Planets see.——
 Hence, 'tis the Cause, of the Sea's Flux, we gain,
 And its Reflux : yet further to explain.——
 If all the Work, of this our Earth, was done
 Without Affections, of the Moon, or Sun :
 The force of Gravity, wou'd never press,
 The Ocean to the Center, more, or less ;
 An equal Height, its Surface then must show,
 It could not Ebb, because it could not flow ——
 But since, in Sun and Moon, are all Things prov'd,
 By Gravity, to their own Center mov'd ;
 And that the Earth, tho' at such Distance low'r,
 Must feel the force of this their motive Pow'r ;
 For Bodies Greater, Greater are, of Course,
 Their Gravitation, and attractive Force.——

And

And, thus, the Ocean Fluids, you must think,
Where least 'tis press'd, will rise—— where most
will sink. ——

Suppose the Moon, thus to the Point we come,
Must draw less, farther off, than nearer Home ;
If right above the Horizon, or below,
There, least the Force of Gravity, will grow
Then will the Ocean, soon to swell begin,
As Waters, harder press'd, come flowing in. ——
Spring-Tides, are such, as always will ensue,
The Moon at Full, and when She changes New : ——
And after each, are found, in three Days space,
With greatest Force,—— and in the highest Place. ——
Those opposite to these, Nepe-Tides, we call,
Of which the lowest, four Days will fall,
Before the Full, or Change. —— But tell me here,
Why different Tides, at different Times appear ? ——
The Moon, when New, or Full, we always find,
With the attractive Sun's, her Forces join'd.
But in the Quarters, they move, diff'rent Ways,
One will depress, where 't'other Works to raise. ——
The differences of Tides, with Truth to show,
One must the Land's Position, rightly know,
The Length and Breadth of Channels, where they
[flow. }
The Moon's, will the Tides Motion, best explain,
Where she sets out, she still returns again,
In five and twenty Hours, —— when you shall
Observe the Water, twice, to rise and and fall. ——

Who to an Hour, any where, will Trace
 The Tide must know the Latitude of Place. —
 Of Earthquakes, next, whose sad Effects are found,
 Above, — altho' the Cause be underground. —
 When, down the hollow Earth, vast Masses fall,
 Are those great shocks produc'd? But what then
 Those hollow Parts have made? They must have [shall,
 [been,
 Only Effects, of some great Force within. —
 The Subterranean Heat, first causes this,
 When raising Water, from the great Abyss,
 Stop'd, and diverted, by some sudden Glut,
 Its usual Passage, to the Surface shut;
 In one great Body, all the Parts are join'd,
 Of Force too great, there to be long confin'd;
 Urg'd by the Heat, the Water boils and swells,
 An hideous Noise, the vast Commotion tells.
 The Fire provok'd, at once, its Triumphs bears,
 And the expanded Earth, with Fury tears. —
 O horrid Shock! when gaping Chasms show,
 The way to Death, a sort of Hell, below.
 Who can describe? the various Scenes of Woe
 When down at once, whole Towns and Cities go.
 The Fire dilating, and expanding wide,
 Upwards and downwards, and on ev'ry Side. —
 The Waters thus let out, are sometimes found,
 The Ruin to complete, by Countries drown'd. —
 The Sea disturb'd, with Noise, amazing Roars,
 And Waves prodigious, beat against the Shores. —
 Earthquakes

Earthquakes will still, with greater Force assail,
Where Nitre, and where Sulphur, most prevail;
For these, a Sort of Gun-powder will make,
Explode like Thunder, and like Thunder shake.——
Italia's Land, Sicilia's, fam'd for these,
With Anatolia, and some Parts of Greece;
Hence are so often, and so long alarm'd;
With Earthquakes harass'd, and with Earthquakes
[harm'd.——

In which, like Tubes—— unloaded of the Weight,
 They rise, to what we find their usual Height.——
 Displaying Nature,—— never be forgot!
 Ingenious Hook, nor yet, ingenious Plot.——
 But yet, I cannot, by the Scheme abide;
 For, set the Atmosphere's whole Weight aside.
 By this—— the Level of the Ocean found,
 Thirty five Foot above, the Rise must bound.——
 The learned Halley, fancies them to be
 Vapours, the Sun has drawn up from the Sea;
 And Calculates so Nice, you'd think did stand
 The Waters, in the Hollow of his Hand.
 Was you to see, that famous Artist trace,
 Tho' but from Kingston-Bridge, its constant Race.
 And hear, his curious Commentators say,
 How many Tons are yielded in a day;
 Without pursuing; all the great Design,
 Before you come to Thames, of Rivers nine,
 What useful Truths, from hence, must needs ensue;
 Cou'd you but know, the Calculation true.——
 Figures aside,—— let Reason here display,
 The Cause of Springs, in the most easy Way.——
 Suppose we then, a constant Heat to glow,
 Throughout the Earth, but more in Parts below,
 Where Mines are found,—— and that the Force of
 [this?

Raises the Waters of the great Abyfs,
 Up to the Surface of the Globe,—— but here,
 Do no thick Strata, in the Earth appear?

Won't

Won't Stone, or denser Marble, stop the Course?
 Beneath the Strata, still its ways will Force;
 Like an Alembick, these will help to raise,
 And Water, forc'd by Fire, on Mountains plays,——
 But here, tho' equal Quantities will rise,
 O're all the Globe, a mighty Difference lies.
 Variety of Time, and Place, will show,
 Why Springs are sometimes High, and sometimes
 [Low.——

But, when the Earth's exterior Heat will bear,
 And the Sun's Heat, convey'd thro' Ambient Air;
 A due Proportion, to the Heat within,
 The Water's further Course, may hence be seen. —
 Yet here, of lower Springs, observe, that they
 Will flourish most, when outward Heats decay.
 Along the Surface of the Earth, they run;
 But fly away, at the Approach of Sun:——
 The different Soil they pass, their Virtues tells,
 At Piermont, Spaw, the Bath, or Tunbridge-wells.---
 Millions, by these, a Remedy obtain,
 From sore Diseases some, and some from Pain.——
 Some with their Source, their Use display, for
 [while,

We see their Vertues Cure, we see them boil ——
 But, what cou'd either Man, or Beast sustain?
 Remote from Rivers, without Springs, the Rain.---
 The Rain, but what if that shou'd cease to fall?
 And then, the Thirsty Earth should drink up all;
 That fell before, scarce one thick Pond is found,
 Whose oily Scum, has not embrac'd the Ground.

Hence, all the Ills of Life, at once, will grow,
Diseases rise——where Waters cease to flow.——

Of Birds, and Beasts, and Fishes, next I'll tell,
How they are form'd, how live, and where they
[dwell.

Insects observe, where any Skill we gain,
And thus, the vegetable World explain.——
The different Earth, or Soil, describe, as will,
Best serve to show, the great Creator's Skill.——
Of these, a vast Variety we know,
From what we see, and what our Books will show.
But cou'd the Muse, have Strength, her Flight
to steer,

Thro' pathless Tracts of Sea, of Earth, and Air, }
What Wonders new, wou'd to the search appear? }
Whence comes it? That so constant fix'd we find? }
Of various Animals—at once, the Kind——? }
Tho' different Countries, different sorts will bear,
Yet, no new Species ever did appear——
Of Animals, what Causes? that the best?
For use; in number, still exceed the rest?——
Have the Sun's Heat, and the Earth's slime decreed?
What for Mankind is fittest, most to breed?
If Animals were thus produc'd, then say,
How's their Production, form'd, a different way?—
Why's still pursu'd, what Nature, did begin,
Some hatch without——and others breed within—
The difference of these, could Nature tell?
Why some, should see, the best, and others smell? —

How

「Brood?

「Food?

The several Insects, lay their Eggs, and breed——

To show, they never cou'd be made by Chance——

For Length of Life, in various Creatures see.

Who seems by Nature made for Life more long?—

Tho' searching Nature, was another Boyl—

In those we call the Wild, and those the Tame.—

How

How with their Natures, all their parts comply,
 As most design'd to walk, or swim, or fly —
 How, with the Seasons of the year, decreed,
 They couple, at the proper Time, to breed. —
 How curiously they frame, how place the Nest,
 As to their several Kinds, will fit the best, —
 How both assist, and all their Forces join,
 To carry on, their Nature's chief Design —
 Whilst one sits close, to hatch, one watches by,
 And sings, to let her know her Guard is nigh. —
 And after, to support, the tender Brood,
 She stays to warm, he purveys for the Food. —
 And when they shou'd, their tender Pinions try,
 Their Motions teach, and watch them as they
 [fly. —

Nor ever leave, their Parent-work undone,
 Till all their Children, can subsist alone. —
 By whom, are some of these, so aptly told,
 When to avoid the Heat, and when the Cold,
 Who, first, directed them, to Climates right?
 And over Seas, attempt the vent'rous Flight. —
 Why do the harmless Birds in Flocks combine?
 And wanting Strength, their feeble Forces join?
 Whilst the Rapacious, take the private way,
 They skulk alone, and thus surprize the Prey.
 Whence does the Dunghill-Cock, the Passions show,
 That vex'd, will raise his Crest, when pleas'd, will
 [crow. —
 Their different Texture, different Taft supplies,
 Their various Colours, entertain the Eyes, —

After

After their Bodies, have suppl'y'd the Feast,
 On the soft Feathers, we compose to rest. ———
 Of Beasts, in Deserts, wild and vast, that breed,
 In Fierceness some, and some in Strength exceed.
 Yet Man, with stronger Weapons arm'd than they
 As Reason for their use, has found a way,
 Takes them from thence, compels them to obey. }
 And those, whose uses are not understood,
 Some Ends of Nature serve, were made for good. ---
 If every Beast is found, that well supplies,
 What Nature can require, or Art devise,
 Shall we repine, at the abundant Store,
 And say, there shou'd be, 'cause we want no more. ---
 In ev'ry Clime, in ev'ry Soil, we see,
 A different Kind of Beasts, to this agree ;
 And all the Parts of ev'ry different Kind,
 Adapted to the proper use design'd. ———
 This tam'd the Elephants, at first, which are,
 Docile and strong, and therefore fit for War. ———
 This, the strong Camel, of Arabia, first
 Burden'd ——— o're burning Sands, he feels no

[Thirst.

Or feeling bears, and thro' the drifted way,
 Do's the vast Load, with wond'rous Speed convey. --
 To Ends of Life, how many serves the Horse?
 For slower War ——— or for the nimble Course. --
 To various Labours, doom'd, by Nature's Law;
 Is still, employ'd, to carry, or to draw,
 Pleas'd with the Work, as if he understood;
 His Labour due, where he receives his Food. ———

What

What Profit does he yield, what Pleasure bring?
 He Serves the Peasant, and Delights the King.——
 The stubborn Ox, tho' Strong, is easy broke,
 And yields his Neck, to take the heavy Yoke;
 In all his Parts, for use of Man complete,
 His Breath, his very Excrements, are sweet;
 Where Lands are deep, with wearied Steps must
 [tread,
 And spends his Strength, to raise his Master Bread:
 Worn out with Labour —— for a short retreat,
 Of Ease, he yields his Life, to give him Meat.——
 How many Creatures more might we produce,
 As Tame? were they, when Tame, of greater Use.
 Thus might the Fox, be as familiar found,
 By Time and Art, as now we see the Hound.
 With how much Care, shou'd we his Off-spring
 [keep?

Had he but Flesh, or Wool, as has the Sheep?
 But unacquainted, in the Woods he lies,
 And as by Man pursu'd, from Man he flies:
 He knows the Dangers that attend the Light,
 And always seeks his Prey at dead of Night.——
 The Beasts neglected, destin'd are to range;
 Nor can, in Woods and Brakes, their Nature
 [change.

For Man, in Deserts found, untaught's confess,
 To differ little, from the Rav'nous Beast.——
 The Species of Dogs, I need not Name,
 Some are our Guards, some find, some catch the
 [Game.
 In

In these Domesticks, wonderful appear,
 The turns of Love and Hate, of Joy and Fear;
 They seem to know, when they commit a Fault,
 And creep away, afraid of being caught.——

Of Fishes next, innumerable Race!

To us unknown, their Nature and their Place.
 The known, an awful Wonder must Command;
 See the Contriver's Skill! Observe the Powerful

[Hand!

What Beast, of all the Forests, may be found?

Which Horror roars, and tears, with Rage, the

[Ground.

That can for Bigness, or for Force prevail,

With that Leviathan, we call the Whale.

That moves, so frightful, threatens so much Harm,
 Spits back the Waves, and breaths a perfect Storm.—

Yet reason'd Man, with Courage, oft assails,

This living Mountain, and with Art prevails.——

Could e're that Breast, be once impress'd with Fear,

That ventur'd in a little Boat, so near?

That Arm was mov'd by a courageous Heart,

Which dar'd, at first, to throw the pointed

[Dart.——

Feeling, he flies, what flying will pursue;

And, thro' the Deep, unreels the fatal Clue:

By which, his varied Way, is understood,

Till toil'd, and spent, he dy's the Sea with Blood.

And thus, a mighty Tribute does afford,

Resigning Life,—— to his Superior Lord.——

The

The Sea supplies the most Luxurious Treat,
 Sturgeon, and Salmon, the delicious Meat! }
 Too good for Heathens, or their Gods to eat.
 The nimble Trout, loves best the rapid Stream :
 A thicker Water, Carp, and Tench, and Bream.
 Yet all their Tastes, are, differently, good :
 Tho' Fat, they Lazy roll, on Beds of Mud.——
 The firmer Jack, does lower Regions shun,
 Oft pleas'd to bask, beneath the Rays of Sun.——
 In ev'ry Place, we see, of ev'ry Kind ;
 A nice Conformity of Parts design'd.——
 And to what Use, the smallest Part avails,
 How move the Fins! how fortify the Scales!——
 Of Fishes shell'd, those we Crustaceous call,
 Have Parts, and Joints, are soft, and fit to crawl.——
 Crawfish, and Crabs, and Lobsters, thus are found,
 Who, wanting Meat, can choose some fresher Ground.
 These, Lobsters to prodigious Heights, will bring,
 Near to be caught, whilst on the Rocks they cling.—
 But the Testaceous Coats of Mail, are those
 Which Oysters, Scollops, Cockles fast inclose.——
 By these preserv'd, else every little tread,
 Of Bodies moving by, would crush them dead.——
 Nor needs their Food, be by their Travail fought,
 What Nature wants, is to their Houses brought.——
 Thus Providence provides for them, and we,
 In them, our own Provision fairly see.——
 Studios of Nature! here a View we take,
 Of th'Earth-worm, Asp, the Adder, and the Snake.--

These,

These, Reptiles, will our Wonder more enhance,
 Who rest one Part, whilst t'other they advance:
 From these we fly, their Stings and Poisons dread;
 But yet, how plain 'tis prov'd, by learned *Mead*,
 All these their Uses have, when given o're,
 The Viper's Broth, the Patient will restore.——
 Insects, tho' small, with larger Birds may vy;
 What raises Blisters, like the Spanish Fly?
 What Beauty sees the Eye, what Comforts feel
 The Spirits, from one Insect, *Cochineal*?——
 How does the Silk-worm, in her Bowels bear,
 And finely Spin, what finest Ladies wear.——
 Be not forgot, at Home, the Pleasures we
 Taste, from the Work of the laborious Bee.
 Her Honey feeds, and Heals, her Wax gives Light;
 Exalting Meed, makes *Spanish* Poets write.
 There, numerous Families by Bees are fed,
 Who fly to earn their Idle Masters Bread.——
 Directed by the Motion of the Sun,
 Their Work begins; by that their Work is done.——
 How they contrive to part their little Cell;
 And in the strictest Rules of Order dwell.——
 Like true Philosophers, their Time divide,
 And not, like lazy Monks, in Cloysters Hide.——
 Nor waste, like Libertines, their Strength away;
 But rest at Night, from the Fatigues of Day.
 How Home, whate're they get, with Care, they
 [bring;
 They Monarchs Love, and still obey their King.——

The Vegetable World,—— who can display?
When but in *Britain*, fails laborious Ray :
With helps of Art, the Memory he Bribes,
And ranges (like the Jews) his Plants in Tribes.
He owns the Work, on foreign Aid depends,
And Thanks (like Steel) his corresponding Friends,---
But since, old *Aristotle* does Confess,
The Greater, always, must include the Less.-----
I think the End attain'd, if I can show,
How Trees, Shrubs, Plants, and Herbs are made
[to grow. -----

Wherein the Chief, the Difference lies, and why?
Some spread abroad, whilst others stretch on high?
Why Trees, at various Times, their Leaves are seen
To shed, and some retain a constant Green?
How Nature does the foliation Suit?

As most requir'd, to help the Growth of Fruit.
How Fruits, Plants, Herbs, with various Taste,
[delights

Flowers, with different Colours, please the Sight?
How Colours Change, and the Perfumes decline,
I'll show, ——— or else to *Solomon* resign. ———

Many affirm, what Reason will not Grant;
That Water makes the Substance of the Plant.——
For sure, some Substance is to Water join'd,
Which to convey, that Vehicle's design'd.——

If you, the finest Sort of Water try,
Small Particles of Earth, will meet your Eye;
In thicker more, and larger, which contain,
The different Sorts of Matter; hence 'tis plain:

This

This Matter is the Food, with which the Earth
 Her Children feeds, and helps to bring them forth. —
 But if the Water's always found to rise,
 As it with Matter New, each Part supplies ;
 Where does the Water, rais'd before, repair ?
 'Tis thence exhal'd, and settles in the Air :
 The finer, leave the crasser Parts behind,
 Whence on the Leaves, like Honey, Dews we
 [find. —]

And, where the Weight forbids, its rising higher,
 'Twill at the Sides, in gummy Sweats perspire. —
 Sometimes, the Vegetable Parts, conjoin
 Too big to enter Pores, exceeding Fine ;
 And then, the richest Earth will not produce ;
 Unless its Parts, be separate and loose :
 Hence 'tis we Dig, or Plough, 'ere Set, or Sow, }
 To let the Matter out, confin'd below : }
 For 'tis that Matter makes the Crop to grow. — }
 And, where the Seeds are weakest, Harrow more,
 As fits the tender Shoot, or narrow Pore. —
 But here, some Plants, tho' of a different kind,
 Have Parts alike, — one way to growth we
 [find. —]

These, by one common Matter, are supply'd,
 Which, where they differ more, must be deny'd. —
 For ev'ry Flower, and Herb, and Plant, and Tree,
 Of different Kind, must different Matter be ;
 And if the Soil, the Principles should want,
 Of various Kind, — that form one common
 [Plant. —]
 Or

Or help its Growth, its Body soon would tell
 From whence Consumptions rise, and where they
 [dwell:]

How fails the Taste, the Colour, and the Smell.

The blended Parts, of vegetable Earth,

An infinite Variety bring forth.——

But Matter, having all its Parts the same,

Alike in Substance, Gravity, and Frame,

Could never make, the Trees and Plants appear

In various Shapes, and various Dresses wear.

Here,—— tell me why, in the same common Kind

Of Plants, such different Qualities, we find?

Why, a Resinous this, or that contains,

A milky Substance, in the flowing Veins.——

By what process, are we to Causes led?

Whence comes this yellow Juice? And whence that

[Red?

Why fragrant Odours, will from some ascend?

Whilst others, with a nauceous Stink offend?——

How to the Taste, so different they apperr?

As Sweet, or Bitter, Acid, or Austere.——

In this Plant Health; in that, we Poison find:

One will the Body Purge; another Bind.

All this, the searching Muse will easy show;

Just as the various Parts of Matter flow.——

Hence we observe, how Soils to growth will suit;

And different Countries, fam'd for different Fruit.

A Soil, with all the Parts, for growth replete;

Suppose (for Instance) such we sow with Wheat:

Yet,

Yet, will not long the Properties retain,
 That Wheat requires, but fits another Grain.——
 And when each Grain has drawn its proper Juice,
 The barren Soil, will then no more produce.——
 Yet a new fund of Matter, will repair,
 And make this Land, afresh, the Series bear.——
 Hence by Manure, we all the Parts restore,
 And Vegetables, thrive, as did before.——
 So when the Trees, and Herbs, have drawn away,
 What feeds their Growth, they Wither, and De-
 cay.——

Consider here, to make the Work complete,
 How fits the Water first, and then the Heat.——
 What can, than Water, Pares more subtle flow?
 Whose Surfaces Polite, and equal flow.——
 Nothing but Fire, which, by various Ways,
 Employs its Force, this Vehicle to raise.——
 By Subterranean Heat, the Work is done,
 By Stoves, and Hot-beds, chiefly by the Sun.——
 For as the Sun, does more or less prevail,
 The Plants are seen to flourish, or to fail.——
 But best, the Sun's attractive Power we know,
 By Trees, that quickest shoot, and highest grow;
 To shed their Leaves, these quickest will be seen,
 Unless the hardiest Sort, of Ever-green——
 Whose Parts, are by an Oily Substance fed,
 And thus, their Leaves, at once, are never shed.——
 With the returning Spring, as Heat revives,
 A Verdure fresh, to Trees, and Plants, it gives:

As stronger Rays, with rapid Force convey,
The Parts of finer Plants, are wash'd away,
Their tender Bodies hurry'd to decay. ———— }

Whilst others, that a greater Heat will need,
Resume their Force, and in the Place succeed.

Thus does the Hand of Providence appear,
In different Scenes of Pleasure, thro' the Year. ————

The Flowers of Plants are Perfect, form'd within,
For several Months, e'er they without are seen.

But tho', for Reasons wise, it is decreed,
That oft the Flower appears before the Seed :

In this observe, the great Creator's Pow'r,
For, first the Seed is form'd, and then the Flower. ————

See how the Nature of the Trees they suit!
Where they make way for, or surround the Fruit;

How guards the larger Leaf, whose Bulk will be,
As flows the Sap, to Fruit, on every Tree. ————

Consider here, ———— how various Trees are made;
Some flourish most in Sun; and some in Shade. ————

The Smell; the Taste, the Substance, each produce,
Prove, some were made for Pleasure, some for

[Use. ————

Long does the stubborn Oak, her Leaves retain,
But quits them, e're the Spring returns again. ————

Her closer Pores, show where the Difference lies;
And that her Body only, is the Prize. ————

What causes, that the Asp, we trembling call?

Her Leaves are Large, her Tendons Long and

[Small. ————

What

What are the Powers, that to Plants must give?
 But Vegetable,—— Names of sensitive.——
 Because their tender Frame, cannot withstand,
 The nicest Touch, or Pressure of the Hand.
 Some will Contract, and Shrink, as we are told
 By curious Botanists, with Heat, or Cold.——
 If thro' the various Soils, of Earth we run,
 They bear Proportion to the Rain and Sun.——
 And Hills, and Vales, and Climates, take their
 [Turns ;
 Here Clay Supports, and there the Gravel Burns.——
 Alternate Heat, and Cold, and Wet, and Dry,
 To every Country, thus affords Supply.——
 Metals, and Minerals, of various Kind,
 Within the Bowels of the Earth, we find.——
 Close, Cusile, Fusil: Some of these, we call
 Factitious; but the others Natural.——
 Of these, the first, that in esteem we hold,
 Is Yellow, most unmix'd, and heavy Gold.——
 The next, in Value, is the Silver White,
 Unapt to rust, when polish'd, shining Bright.——
 The Whitish Tin, and Copper glaring Red,
 Sound their Disdain, to Iron, and to Lead.——
 Mix'd with a certain Stone, will Copper pass
 Its native Quality, and turn to Brass.——
 When Tin, and Lead, each others Parts invade,
 By these, the Compound Metal, Pewter's made.——
 And depurated Iron, will reveal,
 By Heat and Salt, that useful Metal Steel.——
 Woodward, by learn'd Experiments, sets forth,
 No more, than Twenty different Sorts of Earth——

Excluding

Excluding Fossils, which are understood,
 Lodg'd in the fluid Earth, at Noah's Flood.——
 The various Sorts of Shells, of Teeth, and Bones,
 Born in the Earth, are Seventy sorts of Stones.——
 Hard is the Task, of Minerals to write,
 From their uncertain Colour, Figure, Site.
 Thus, in a common Marchasite, Behold !
 The Lustre of Silver, or of Gold.——
 When yet dissolv'd, a little Sulphur, shall
 And Vitriol, appear to be its all.——
 Another Body, that has never shone,
 But seems a Pebble, or a common Stone ;
 Shall in its inmost Parts, conceal'd, retain,
 A Metal Rich, and bring the Searcher Gain.——
 So, with the same uncertainty, we trace,
 What in the Earth, has no continu'd Place.——
 In Gems alone, some Difference is found,
 Which lodge apart, in Fissures of the Ground.——
 Thus th'Emerald, Amethyst, Topaze, will show,
 A Chrystal, and in angled Figures grow :
 When those, in strata found, rude Lumps are seen
 Only like Pebbles, Yellow, Purple, Green.——
 Metals, indifferently plac'd, we find,
 Thro' all the Earth, tho' of one common Kind.——
 By frequent Intermixture, various they
 Their compound Parts, will thus at once display.——
 Copper, and Iron, in this Mass are fed ;
 In that, Gold, Copper, Silver, Tin, and Lead.
 And sometimes, in one Lump, conjoin'd you'll see,
 How different Metals, will in Place agree.——
 And Minerals, and Metals, often join,
 Will blend, and intermix, and fast combine.——

The finest, and the best, derive their Birth,
 From most exalted Spirits of the Earth; —
 And then, no doubt, their Texture to complete,
 The strongest Parts, must feel the strongest Heat. —
 Hence, is the Diamond form'd, with rays of Light
 That Star of Earth! transparent to the Sight. —
 Of all the Kinds, the Magnet, but survey; —
 What wondrous Powers, does that one Stone dis-

[play?

How should, two opposite Poles, so near have

[Growth?

This, pointing to the North, and that to South. —

How these remain? tho' you disturb the Frame,

For every Piece, will still retain the same. —

In the Globe's different Parts, these Poles you'll

[find,

To the Earth's Center, diversly inclin'd.

Why by the Loadstone, so much more is done?

When arm'd, or capp'd, than it can do alone.

And in our Northern World, its Force will fail;

In the North Pole, and in the South prevail. —

How will its Pow'r, and Vertue, be decay'd,

When, Long, in a wrong Posture, it is Laid?

By Rust, or Wet, it weaker grows — by Fire

If too intense, its Vertues will expire. —

The Magnet's Operation, we Assigne,

To Particles, that flow, exceeding Fine;

And, as at one Pole, to pass out, are made,

Fly round, and thus the 'tother, soon invade. —

Wou'd you of Magnetism, know the Cause,

First learn, the Nature, of mechanic Laws. —

This

This has reveal'd, what secret long remain'd,
And what, the Rabbins, wonder'd at, explain'd. —

Let this, on Nature be the first Essay,
The next, shall Arts, and Sciences, display,
Here, I propose, thro' the whole Course to run,
Of peopled Earth, and Nations first begun;
Of Languages, the Progress, and the Source,
Their Difference, Analogie, and Force.
Of Governments, Religions, Customs, Laws,
The different Nature, and the different Cause. —
And, when the Muse, with Labour has explain'd.
What in the World's most distant Parts contain'd:
To what concerns us most, will, fitly, come,
And show the State, of all things here at Home. —
Nature's chief Master-piece completes the Scheme,
Thus will immortal WALPOLE be my Theme.
Like Marius Great, but in a different Way,
One Thinks to Save, as t'other Fought to slay.
How unconcern'd! o're Scorpions he walk'd,
Like Suarez reason'd, and like Tully talk'd.
His Reasons conquers still, but ne'er will Harm;
Less Skill, less Courage kills, than can disarm.
With noble Scorn, disdains what Malice tells;
He baffles Spight, the best, that most excels.
His Greatness true, his active Vertues show,
Nor can receive the Good, he can bestow.
What Angry, wou'd-be, Statesmen say's a Sham
For WALPOLE has refin'd on Walsingham;
Who found the Way, at once, to humble Spain,
ELIZA lik'd him, — and he Grac'd her Reign.

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